

MARCH 1956

AMERICAN ARTISAN

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RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING

START COOLING jobs by cutting
heat gain 86

IMPROVE HEATING by relocat-
ing thermostat 100

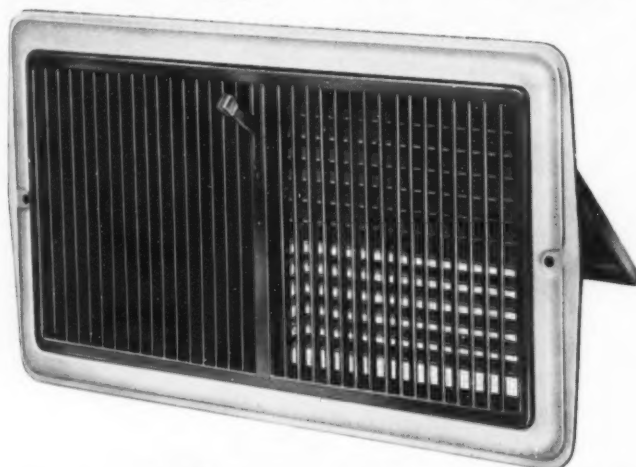
SHEET METAL solves arched roof
demands 123



PLANNED SHOP layout gives
workers room to produce 80

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On Your Register Cost With AIR CONTROL'S *Fabulous New* No. 20 REGISTERS



The Register That Has Everything PERFORMANCE! STYLING!

Complete 4-way Control of the Air Pattern — Adjustable Vertical Front Fins and Horizontal Back Fins — Balancing Damper controls air volume Without Changing Air Pattern — Increased Free Area. Costs 30% less than any other fully adjustable 4-way control register.

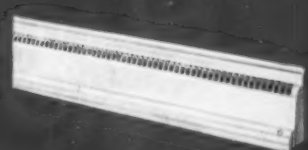
Beautifully contoured styling with two-tone Chameleon Beige decorator finish that blends with any interior. Sculptured plastic operator knob. Available in a complete range of standard sizes, with fins factory-set for optimum *multi-flow* pattern. See your jobber today!



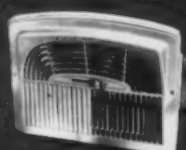
AIR CONTROL PRODUCTS INC., Dept. A., Coopersville, Mich.



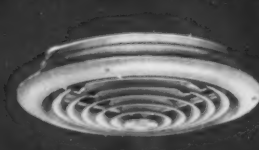
EVERY AIR CONTROL PRODUCT IS TOPS IN ITS CLASS



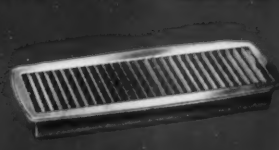
NO. 188 SERIES BASTIONED DIFFUSER. The only bastioned diffuser with built-in rotary damper. Adjustable bottom hinge clip permits positioning any part of diffuser over duct... cuts installation time and cost.



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WRITE FOR NEW '56 CATALOG — SEE YOUR JOBBER

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Made in Sweden by Sundstrand Hydraulic
Division AB Stockholm

AMERICAN ARTISAN

MARCH 1956

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RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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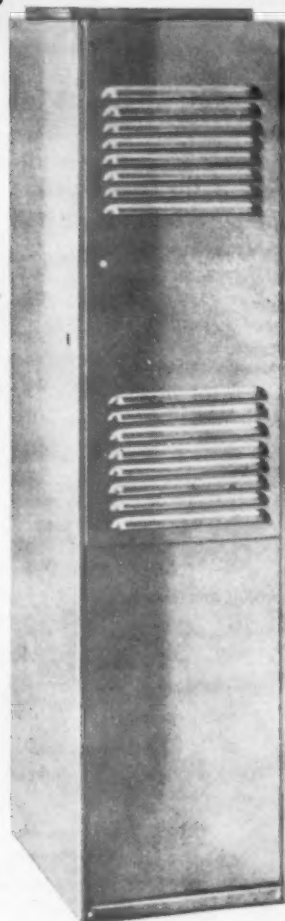
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WARM AIR FURNACE
AND WINTER AIR
CONDITIONER
THAT
HAS
EVERYTHING!**

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WATERTOWN, WIS.

the editor's notebook

Thumbing Through This Month's Artisan

... we pay an informative visit to Terre Haute, Ind., where we verify some established merchandising principles when a *Dealer Test Shows Value of Sales Promotion*. Sponsored by a prominent manufacturer of heating and air conditioning equipment, the test records sales increases of a typical dealer in a typical city, which can be reasonably attributed to a carefully planned sales promotion program. We follow the careful consideration of all points in the selection of a typical U.S. city which is free of abnormal influences which might affect the final results, and of a dealer who is adequately equipped to handle the campaign and the resulting sales increases.

Thermostat

... and we find out *What to Do About Temperature Droop*, a condition described by authors S. Konzo and H. D. Bareither as the result of the necessary installation of a heater coil in the room thermostat to sensitize the bimetal element for temperature control. Defined basically as the lag of room temperatures behind the temperature within the thermostat itself, the droop condition is attacked by the authors through thermostat relocation. Effects on room comfort are evaluated for all feasible thermostat locations and some helpful suggestions are presented for overcoming a problem many heating dealers have encountered.

Roof

... we inspect a big job — and a big stride for the sheet metal industry



ODF* TANK GAUGE gives exact reading level of oil in tank *at point of delivery!*

Located outside of building at fill pipe, this new, easy-to-read fraction calibrated, pressure-tight gauge shows the exact level of oil in tank at all times! Saves costly, time consuming trips to basement and unnecessary unreeling of hose... Permits delivery without disturbing customer and eliminates spills as there is a "stop filling" indicator on calibration. Made of weather-proof materials throughout with thermometer indicator securely encased in plastic dome that will not fog or cloud up. No gears, cams, magnets, tapes or intricate mechanisms to get out of order. Write for complete information and low cost unit prices on this modern "delivery point" remote reading gauge today.



KRUEGER Sentry GAUGES
GREEN BAY • WISCONSIN

the editor's notebook

(continued)

— in St. Louis, where *Sheet Copper Sets the Pace in Airport Roofing Design*. We see how the versatility of copper was employed to combine utility and attractiveness in a complicated roofing design which features a series of parabolic arches. Batten seam construction was used to meet the structural demands of the job, said to be one of the major roofing jobs in the Midwest and employing 12,000 pounds of cold rolled copper. We see how soldering was held to a minimum by locking the seams in the direction of water flow and we note how the contractor wrote provisions for future expansion into the plans.

Loads

... and we prepare for the approaching boom in residential air conditioning with S. W. Reid, who suggests *Why and How to Reduce Heat Gain Loads* in residences. Underlining the need for dealers to begin now to set themselves up as responsible authorities in year 'round comfort, by showing customers how to get the most for their air conditioning dollars, the author suggests methods for reducing the cooling load of a home as an alternative to oversizing the equipment. The importance of such factors as building orientation, insulation and others is illustrated in factual charts and tables.

Good Heating Market In Modernization Work

WE'VE ALL been reading in the daily newspapers about the tightening up of mortgage money and how it will be reflected in the house building field by reducing the number of housing starts during

die-cut
pre-fabricated

WILLIAMSON

DUCT, PIPE & FITTINGS

for any cooling or heating system



The Time-Wasting Way



The WILLIAMSON Way

**ACT
TODAY!**

Send for new free
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Catalog!

Whatever type home installation you are making, you can increase your profits by using WILLIAMSON pre-fabricated duct, pipe and fittings. It's the most comprehensive line offered . . . designed to make your jobs faster and easier, yet maintaining the high tailor-made standards you have established. WILLIAMSON, *first* in the industry with a combined line . . . for both cooling and heating . . . assures you the most modern duct, pipe and fittings available. Check the numerous WILLIAMSON advantages . . . then act today for pre-fabricated profits!

Compare . . .

SIMPLIFIED DESIGNING AND ORDERING— Every system part numbered for quick identification. Factory forms and sample plans for guidance.

SPEED SHIPPING, CUT UNLOAD AND LOAD TIME— Everything you need from *one* source Com-packed for individual job. No loose fittings. Easy identification.

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The Space-Wasting Way



The WILLIAMSON Way



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☐ Have a WILLIAMSON representative visit me

Send me information on:

- ☐ Heating Equipment ☐ Cooling Equipment

THE WILLIAMSON CO., 3310C-3 Madison Rd., Cincinnati 9, Ohio

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Firm

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City Zone State

the editor's notebook

(continued)

1956. Perhaps you haven't heard why there is less money available for mortgages. I have learned that the real reason is the high credit demands from all sectors of the economy. There is just so much money available for making loans of all types and often loans made for a short period provide a higher rate of return. Thus, when the demand is heavy for short term money to finance automobiles, furniture and appliances, the money available for mortgages drops. If your business has previously been in the new house field and you see a slide coming in the number of houses to be built in your area this year, then why not think about the modernization market? The loans made for this type of work are for comparatively short terms and there seem to be plenty of lenders ready to do business for modernization work where improvements tend to add value to the property.

Sees Bright Future For Controls Industry

PEOPLE are becoming more control conscious each year as evidenced by the findings quoted by Paul B. Wishart, president of Minneapolis-Honeywell Regulator Co., at a recent meeting I attended. Mr. Wishart said that the automatic controls business for the home heating and air conditioning fields was growing very rapidly and could be expected to follow the example already set in the automatic heating field, which has increased 400 percent in the past 10 years to reach a total of 17,000,000 installations. This information is valuable in that it points out the need for dealers' salesmen to be alert to the opportunity for

meriting trust*



*Nu-Way oil burners

Meriting trust. That's how Webster defines "dependability." That's how customers describe Nu-Way Burners. Dependable components are used throughout, production run after production run.

Dependable motors. Dependable transformers. Dependable pumps. Every purchased part is built by suppliers of known quality reputations. No substitutes. Only the finest materials. In fact, some people think we carry this fanaticism about quality too far. Maybe we do. All we know is—our customers seem to like this "obsession" we have. They know they can trust Nu-Way to build burners that won't let them, or their customers, down. That is the basic fact to remember about Nu-Way Burners—they're dependable. They **merit your trust.** Nu-Way Corporation, Dept. AA-356, Rock Island, Illinois.

the editor's notebook

(continued)

replacement control business whenever any modernization of the fuel burner is being contemplated.

Make Cooling Prospects Out of Heating Sales

AT A RECENT press conference, Cloud Wampler, president, Carrier Corp., told us, "The fact is that Carrier's Unitary Equipment division is not basically interested in entering the residential heating business as such. But it is tremendously interested in year 'round air conditioning, present and future, and the new winter "Weathermaker" is a necessity in this connection. Every man who purchases one of these units today is a first rate prospect for complete air conditioning two or three or five years in the future."

More Aluminum for Curtain Wall Panels

THE ANNUAL report from Aluminum Co. of America shows that 1955 was the "strongest year" in its history. Of the 700,000 tons produced in 1955 more was used by sheet metal contractors than in any previous year. The scheduled capacity for 1956 is 792,500 tons. It looks like the sheet metal field will continue to find more uses for this lightweight material in the erection of curtain wall paneled buildings.

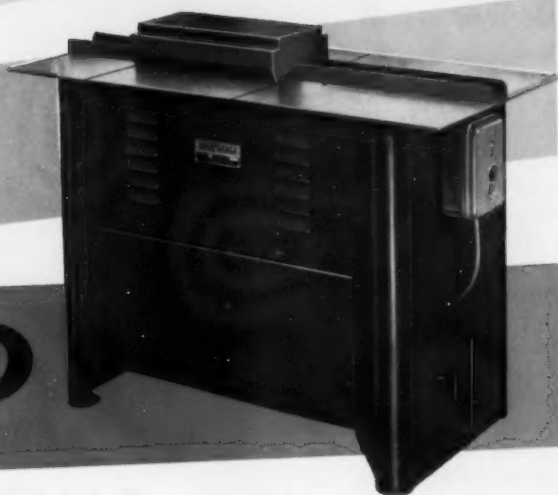
Service Men Can Build Cooling Prospect List

SUMMARIES of 1955's production of all types of equipment are now becoming available. I was interested to hear from Kinetic Chemicals Div., E. I. du Pont de Nemours & Co. that about four million

SMALL SHOP,

BIG SHOP,

ANY SHOP



saves money with the **LOCKFORMER**

SUPER-SPEED "20"

**Rolls Pittsburghs and other
seams at speeds up to
75 feet per minute**



A hundred dollar savings in labor is just as important to a small shop as to a large one...and it takes a surprisingly short time for the Super-Speed "20" to save that amount, or more, over existing equipment or methods. Speeds up to seventy-five feet per minute cut seam making time in half; on a job you formerly needed all morning to fabricate, you'll now have two "free" hours for other work. The whole job is speeded up, the labor cost drastically reduced! Whether you're replacing old equipment or adding new, by all means get the facts on the new Lockformer Super-Speed "20". Write for full information, today!



**One Man With A Super-Speed "20" Makes More Pittsburgh
Locks Than Forty Men With Twenty Brakes**

THE LOCKFORMER CO.

4615 WEST ROOSEVELT ROAD • CHICAGO 50, ILLINOIS

the editor's notebook

(continued)

room air conditioners have been produced in the last three years. A survey conducted by this company also indicated that only one home in 22 is equipped with mechanical air conditioning equipment.


It's my opinion that home owners with window air conditioners are just getting a taste of summer comfort and should become excellent prospects for central systems. Now would be a good time to have service men report every time they answer a heating service call and notice that the home owner has a window unit. The names of such customers would make an excellent marketing list for future use.

Small Businesses Offer Good Cooling Potential

I LIKED the comment made by Edwin E. Hokin, president, Union Asbestos and Rubber Co., when he announced what he believed to be the prospects for air conditioning equipment sales for 1956. He said, "There will be a substantial increase in the installation of commercial package type air conditioners." I believe this, too, and feel that members of our industry can earn more profit by instructing their salesmen to look into the sales potentials of barber shops, beauty parlors, small retail stores and doctors' offices.

No Early Prospects for Atomic Home Heating

THERE'S BEEN much to-do of late about the prospects of atomic or solar generated heat replacing conventional fuels in the near future. But my investigations haven't unearthed any outstanding dis-



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FACTS,
Sir...**

**A GOOD
DISTRIBUTION
SYSTEM IS THE
ONLY WAY A UNIT
CAN DELIVER ITS
RATED OUTPUT!**

GOOD installations result in a minimum of trouble-calls; a maximum of customer satisfaction. A GOOD installation is, therefore, **LOWEST IN COST** and **HIGHEST IN PROFIT.**

IT'S A FACT that better installations result from use of better materials. IT'S ALSO A FACT that to be sure of better materials, you should always

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PIPE, ELBOWS, DUCT & FITTINGS

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OMAHA, NEBRASKA



the editor's notebook

(continued)

coveries that would make this practical. Now I learn that a recently conducted poll among some of the men who should know the answer to this question shows that neither of the two media can be expected to enter the residential heating field for at least another 10 years. The survey was conducted by Minneapolis-Honeywell Regulator Co. and reported by Kenther L. Wilson, manager, heating controls division, who summarized the experts' opinion thus: "Nuclear power and solar energy will not be economically feasible for home heating purposes for at least a decade."

Cites Cost of Training New Employees

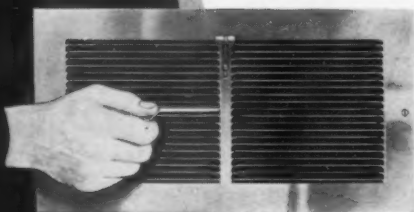
THERE ARE many hidden costs involved in operating any business, and the alert dealer tries to remember to keep them all at a minimum; however, there are some costs that just seem to happen and not much is done to keep them down. One of these costs is that of training new employees and in a recent letter from the Industrial Psychology Research Center, I learned that the average investment in a rank and file employee is about \$300 and that a supervisor or management trainee will cost between \$1000 and \$5000 before he has been trained to handle his job. It certainly pays to make the right guess when selecting a trainee.

The research center suggests that when selecting trainees steps should be taken to be sure that the following traits be predominant in the individual selected: ability to think logically, have self-confidence, be energetic, be in good physical condition and have outside activities.

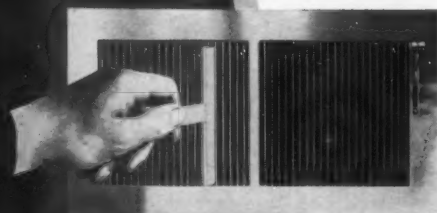


Decorator Gray

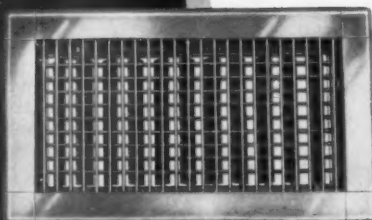
**CHOICE OF LEADING COLOR AUTHORITIES
NOW STANDARD FINISH
ON H&C REGISTERS-GRILLES-DIFFUSERS**



No. 74
Design — a low-cost,
quality air condition-
ing register.



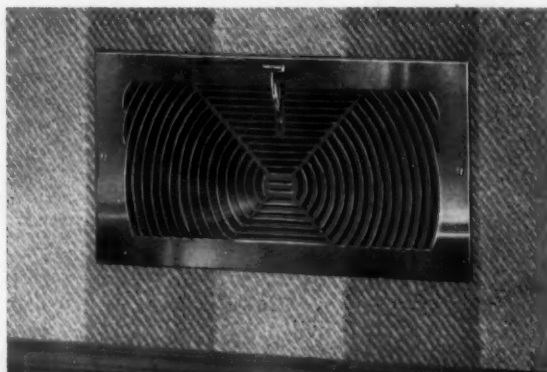
No. 76
Design — Fin type
face, air conditioning
register with multi-
shutter valve — very
popular.



No. 92VHV
TRIPLE-AIRE Registers
and Grilles for commer-
cial installations, provide
every combination of
deflection desirable.

The color of this finish, which replaces our regular Prime Coat, was selected by the country's leading color authorities as the one most universally harmonious with all interior decorating schemes. You'll find it makes a decided hit with practically all of your customers. And for those who prefer to decorate the registers or grilles in the same color as the surrounding walls, this new finish affords an excellent base . . . so, it is sure to please them all.

For every type of installation, domestic or commercial, H&C has the ideal register, grille or diffuser. See them at your H&C Jobber's. Ask him for a copy of our current Catalog "A".



No. 401 Sidewall Diffuser (Perimeter) blan-
kets wall of average room. Has volume control
valve.

HART & COOLEY MANUFACTURING CO.

300 EAST EIGHTH ST.,
HOLLAND, MICH.

PRODUCT OF THE WORLD'S LARGEST and MOST PROGRESSIVE PRODUCERS OF REGISTERS and GRILLES

the editor's notebook

(continued)

When picking your next foreman or sales manager, keep the above qualifications in mind and forget about seniority — the weakest basis of all for selecting a man.

Receives Award From Metal Trades Group

My congratulations to Cloud Wampler, president, Carrier Corp., who has just been awarded the National Metal Trades Association's Achievement Award for Industrial Relations. In presenting the award to Mr. Wampler, Earle S. Day, president of the association said, "This annual award is made to the individual who has made outstanding contributions to further the establishment and preservation of equitable working conditions in industry."

Special recognition of Mr. Wampler's achievements was made by Walter G. Koch, award committee chairman, who explained that the award was presented to Mr. Wampler for his "contributions under the American economic system in the field of industrial management and human relations; development of sound employee-employer communications, industrial education, and management leadership programs; promotion of training programs for apprentices, supervisors and engineers and for the improvement of managerial and technical skills; civic leadership and the encouragement of employee participation in furthering the well-being of their communities and the nation."

Plan to Build Plastic House

SINCE the end of World War II there has been a rapid expansion in the use



Don't
Be
Caught
In A
Jam!

BE SURE you use...

**GALVAN
ELBOWS**



THEY
S-L-I-D-E
TOGETHER

* It's the precision
production that counts

GALVAN
MANUFACTURING COMPANY
NEW ALBANY, INDIANA

the editor's notebook

(continued)

of plastics. R. C. Evans, director of marketing, Monsanto Chemical Co., writes me that his company has completed plans for building an entire six room house of plastic materials. The house will be primarily for experimental purposes but quite adaptable to modern living. The "house of tomorrow", as it is called, has a master bedroom 16 × 16 ft, living room 16 × 16 ft, two smaller bedrooms 8 × 12 ft and a dining room 10 × 16 ft, an 8 × 16 ft kitchen, two baths, an entry hall and a 6 × 8 ft storage room.

The furnace and cooling equipment is located in a partial basement 16 × 16 ft. Laundry equipment is also located in this area. Crawl space type of construction is provided for conditioned air duct distribution. The ducts will be of flexible corrosion-resistant plastics. The side walls of the house will be of curtain wall panels using glass reinforced plastics in a variety of colors and degrees of translucency.

It looks to me that in addition to the many skills now demanded of the sheet metal worker, he is going to find other techniques are needed to be able to handle the variety of work expected of him. New techniques may have to be developed for such jobs as welding plastic sheets into duct fittings, trimming and fastening exposed equipment such as diffusers and registers, and sealing plastic joints in the curtain wall panels so that the panel section joints will not be noticeable.

Clyde M. Barnes

EDITOR

Luxaire YEAR 'ROUND AIR CONDITIONING

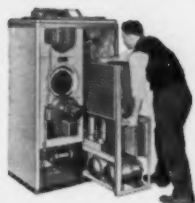
● Sound sales judgement is on your side, when you install the Luxaire complete Year 'Round Air Conditioning Unit.

When you install it as a complete cooling and heating package, you furnish both the heating plant and the cooling section in a single, compact cabinet that requires less floor space than many standard furnaces. You make but one installation, which provides balanced distribution of both cooling and heating from the same, centrally located unit. Installation is easier and less costly, because you use the factory engineered, complete Luxaire Air Conditioning Unit.

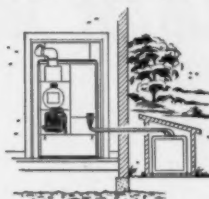
Many Luxaire Year 'Round Air Conditioners are installed without the cooling section, to be used for heating only, temporarily. Dealers making such sales find that they make more money than when they sell an ordinary furnace.

When you install a Luxaire Year 'Round Unit for heating only, you also provide yourself with the basis of an

NOW!
Enjoy
Year 'Round
Profits
with the
Complete
Line of...



As illustrated, the Luxaire Water Cooled Circuit easily slides completely within the combination cabinet. Cooling Coil only of Air Cooled Circuit is installed inside the cabinet.



Year 'Round Unit with Air Cooling, showing Refrigerant Tubing leading from Cooling Coil inside Cabinet to remotely installed Air Cooled Condensing Unit.

LUXAIRE YEAR 'ROUND AIR CONDITIONING UNITS

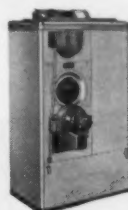


Upflow Year 'Round Unit with Gas Burner installed: 140,000 Btu Input with 3 Ton Air or Water Cooling; also with 100,000 Btu Input and 2 Ton Air or Water Cooling.

5 Ton Upflow Year 'Round Air Conditioner with 175,000 or 140,000 Btu Input Gas or Oil Heating and 5 Ton Water Cooling.



Upflow Year 'Round Unit with Oil Burner installed: 112,000 Btu at Bonnet with 3 Ton Air or Water Cooling; also with 84,000 Btu at Bonnet and 2 Ton Air or Water Cooling.



Counterflow Year 'Round Unit with Gas Burner installed: 140,000 Btu Input with 3 Ton Air Cooling only; also with 100,000 Btu Input and 2 Ton Air or Water Cooling.



Counterflow Year 'Round Unit with Oil Burner installed: 112,000 Btu at Bonnet with 3 Ton Air Cooling; also with 84,000 Btu at Bonnet and 2 or 3 Ton Air or Water Cooling.

even more profitable sale of either the Air Cooled or Water Cooled Cooling Section, to be added later. Who, on a blistering hot, soaking humid day, can resist the desire to add the cooling section, right away . . . especially, if the empty cabinet space and properly sized ducts are already provided. With the Luxaire Year 'Round Unit installed for heating only, your Cooling Section sale is ready-made!

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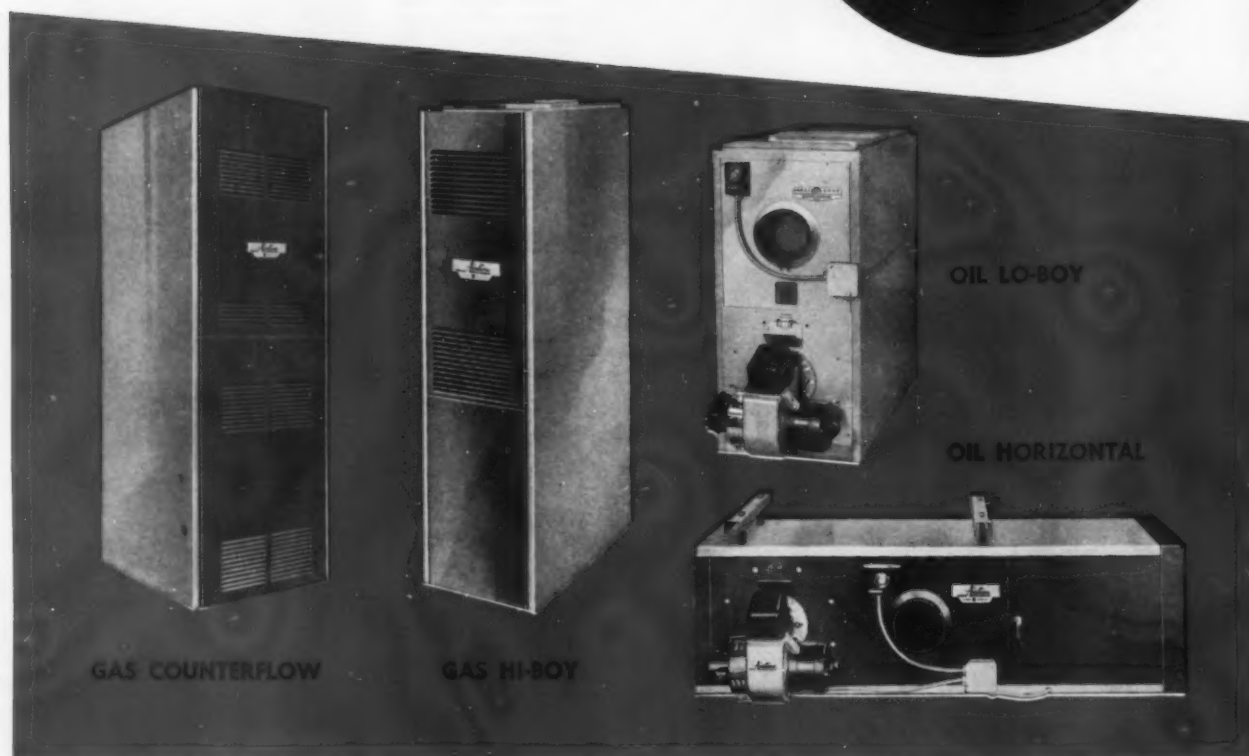
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And why don't you? Your Armstrong wholesaler can give you the whole money-making Armstrong story. Call or write today.

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- * And you're selling quality equipment

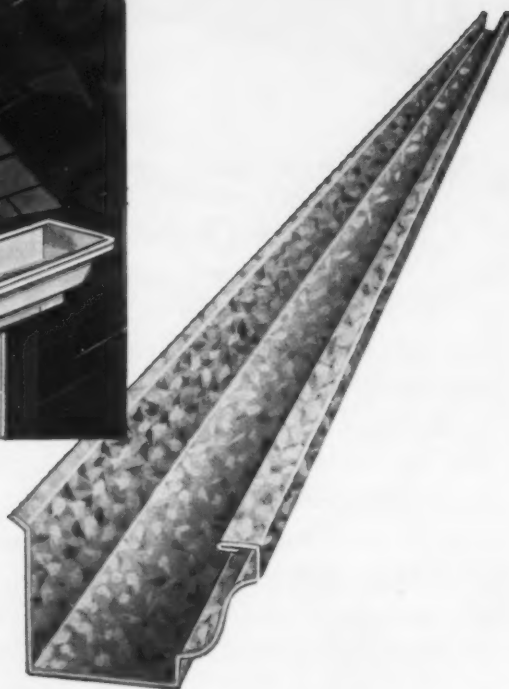


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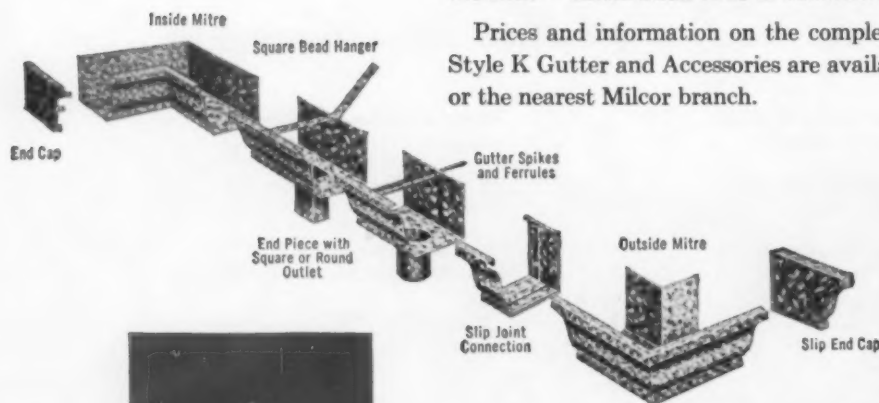
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S-139

Sees 1956 As Big Aluminum Year

R. S. REYNOLDS, JR., president of Reynolds Metals Co., predicts that more aluminum will be used in 1956 than ever before. "The principal reason is the record supply, made possible by the steadily climbing output of domestic producers," he said. "During 1955, they supplied an estimated 3.1 billion lb of new primary production, exceeding all expectations and setting a new record for the fourth successive year. The supply outlook for 1956 is another new high, with added facilities bringing production up to 3.3 billion lb. Aluminum shipments to American industry during 1955 were about 35 percent higher than in 1954 and are increasing month after month."

Urges Controls Over Welfare Funds

"CONGRESS SHOULD ACT now to provide legal controls over welfare funds including full disclosure of their financial affairs," Joseph E. Moody, president of the Southern Coal Producers Association said at the Western Labor-Management Relations Conference held recently in San Francisco. More than 300 business men attended the West Coast conference. Mr. Moody said President Eisenhower's proposals for welfare fund reforms deserve the support of business men, but actually represent "no more than a step in the right direction."

He proposed that welfare and pension funds be removed from collective bargaining as "not a proper subject for renewed negotiations every year or so." He also pointed out that union membership or non-membership "must not be a criterion for any worker's receiving benefits from a fund to which he is otherwise entitled."

Builders See Slight Drop In 1956 Home Construction

THIRTY REPRESENTATIVE home builders from all sections of the country met recently at the National Housing Center in a round table discussion with government housing and monetary officials on the outlook for 1956 residential construction. The builders predicted that over-all building in their areas would be only moderately below 1955's very high levels, according to Thomas P. Coogan, chairman of the meeting. "Problems of financing, costs, land and lower profit margins will result in a small but noticeable decline in 1956 home building activity," he stated.

The metropolitan areas on which these builders reported accounted for about 30 percent of all U. S. home building in 1955. The 1955 production in these areas was slightly more than 10 percent higher than the 1954 production. For 1956, a 7 percent cutback was anticipated.

Most frequently mentioned reasons for the cutback were financing difficulties and credit restrictions. "Tight money," "cost of money," "discounts," "lack of financing at reasonable rates," "lenders are holding back" were among the factors mentioned.

The builders reported that home prices have moved up significantly

in the past two years. Between 1954 and 1955 the typical increase reported was some \$1500, bringing the typical home price to \$14,500. In 1956 prices are expected to move up again, but somewhat more slowly, with a \$500 increase in the typical price anticipated for the year, reflecting the larger house size and the increasing cost of producing the

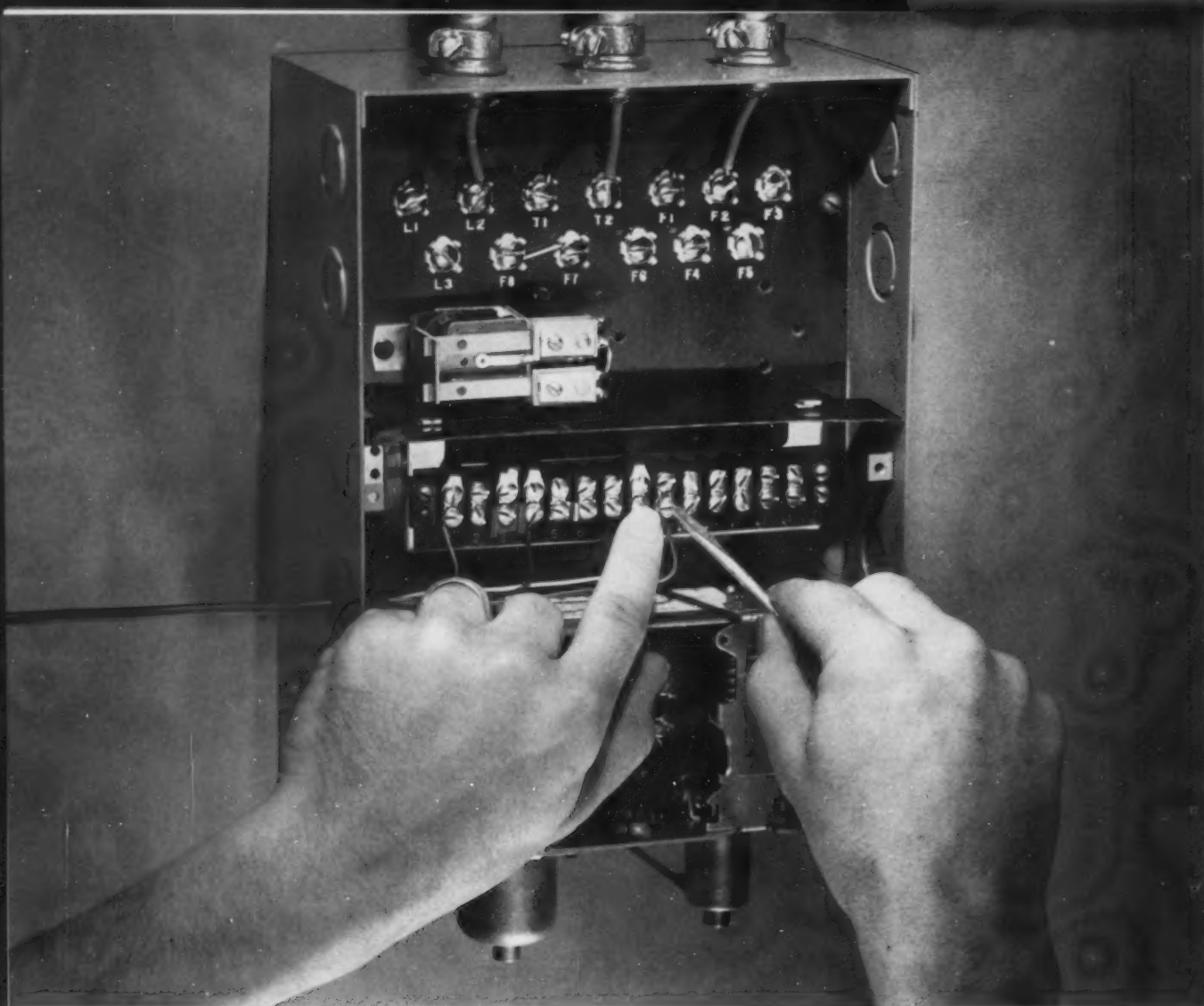
(Continued on page 22)

Steel Capacity At Record High

THE STEELMAKING capacity in the U. S. increased more than 2.5 million tons in 1955, to a record 128.4 million tons annually, according to the American Iron and Steel Institute, and the institute predicts that it will rise much higher at a rapid rate. Steel companies have scheduled additional expansion and improvement programs which total about 15 million tons of ingots and steel for castings during the next three years, and some companies have formulated plans even farther into the future. Blast furnace capacity went up 1,514,130 net tons during 1955, and is now rated at a record 84,485,230 tons annually. In the past 10 years steel and iron companies have spent more than \$7 billion and an additional \$1.2 billion will be spent this year. Last year's increases in steelmaking capacity took place in 15 states. The largest gain occurred in Pennsylvania, where the combined capacity rose 987,670 tons. New York, formerly the sixth state, became the fifth largest steel state. Pennsylvania, Ohio, Indiana and Illinois remain the four largest steel producers, in that order. Michigan is sixth, followed by Maryland and Alabama.

Ship More Oil Fired Equipment in '55

THE OIL-HEAT Institute of America, Inc. reports that for the first 11 months of 1955 shipments of residential oil fired warm air furnaces were up 6.7 percent over the corresponding period in 1954. Burners shipped separately for conversion from other fuels and replacements, according to OHI, were up 13.8 percent over the same 11 months in 1954.



ONE-UNIT AIR CONDITIONING CONTROL SIMPLIFIES WIRING

In the new Penn Series 753 air conditioning control center, all functions are centralized in one compact unit. There are 14 low voltage terminals for both heating and cooling . . . so all wiring is simplified by centering it into one unit. There is no need for additional connection or junction boxes. Also reducing wiring problems are the built-in high and low pressure cut-out controls.

And, there are advantages for the manufacturer, too. For example, the Series 753 has detachable bellows which permit pre-assembly of pressure elements into hermetic systems. To be sure you're getting the best, look for the Penn Series 753 on the self-contained package air conditioning units you buy and install for either residential or commercial applications.

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See how easy it is to make wiring connections in the Series 753 . . . both line and low voltage terminals are easily accessible in this "clean-cut" panel assembly.



Exterior view of Series 753 residential air conditioning control center.

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HIGHBOYS
Oil or gas. Remarkably compact. 80,000 to 150,000 Btu. Enclosed controls.



COUNTER-FLOWS
In gas or convertible oil. Pre-wired, assembled. Large blowers. 100,000 Btu.



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WHAT'S HAPPENING

(Continued from page 19)

Great Potential Market Seen For Sale of Gas Heating Equipment

DEAN H. MITCHELL, president of the American Gas Association, reports that during 1955 the industry reached new record highs in numbers of customers served with utility gas, in volume of gas sold to ultimate consumers and in revenues received from the sale of gas. The Federal Power Commission, Mr. Mitchell said, authorized about 4500 miles of new natural gas transmission pipeline last year, and more than 22,000 miles of natural gas distribution and storage pipeline not requiring FPC approval were constructed during the year. "The present total of natural gas gathering, transmission, distribution and storage pipelines in the U. S. is more than 445,000 miles," he noted. "With an additional 50,000 miles of pipeline carrying manufactured and mixed gas, the nation's entire gas pipeline now is approaching one-half million miles, and will pass the 500,000 mile mark in 1956." The report points out that gas utility and pipeline companies spent approximately \$1,385,000,000 for new construction and expansion of facilities during 1955. Estimates made by the AGA's bureau of statistics place total construction expenditures for

the four years from 1955 through 1958 at more than \$4,300,000,000.

AGA statisticians estimate that a great potential market for sales of gas heating equipment exists in the U. S. "With a maximum of promotional effort and product design improvement," Mr. Mitchell states in his report, "the gas utility industry could sell more than 20 million gas heating units of all types in the five years from 1955 through 1959. Actual sales of such heating units in the five years ending in 1954 amounted to 15.1 million units. It is anticipated that space heating requirements in 1957 should be 53 percent ahead of 1954."

The Gas Appliance Manufacturers Association reports that manufacturers of gas warm air furnaces shipped 850,000 units during 1955 — nearly 30 percent above the 1954 total. Shipments of gas water heaters in 1955 reached a total of 2,799,000 units, which is 22.7 percent above the 1954 total. Both figures represent alltime highs in annual shipments. GAMA predicts that gas central heating systems in use will be in excess of 9,000,000 by the end of the 1956-57 heating season.

Stainless Steel Production at New High

THE FINAL FIGURE for finished mill products produced by the stainless steel industry during 1955 is expected to be about 673,000 net tons, according to E. J. Hanley, president, Allegheny Ludlum Steel Corp. This is an alltime record high for the industry, according to Mr. Hanley's report, and is a 49 percent increase over the 1954 production. He pointed out that production of stainless steel has doubled in every decade since it was first introduced, and predicted that this growth would continue—that shipments by 1960 might reach 800,000 net tons of finished mill products annually. Mr. Hanley commented that the sales picture for 1955 was good, and that his company is looking forward to another good year in 1956.

Roger M. Blough reports that United States Steel Corp. is increasing production of stainless steel sheets and strip by the installation of additional facilities in the Pittsburgh and Chicago areas. In his year-end statement, Mr. Blough, chairman of the board, also commented on the research work being done by his company in developing new and improved steels.

Forecast Dip In Home Construction

(Continued from page 19)

finished house, including a substantial increase in land cost.

The action of the Federal Housing Administration and the Veterans Administration in restoring the maximum maturities on loans insured and guaranteed by those agencies to the statutory limit of 30 years was viewed by the builders as "a step in the right direction," but none of the participants in the round table were of the opinion that this action alone would resolve all of the mortgage financing problems now facing the industry.

January Building Sets New Record

THE VALUE of new construction activity declined seasonally in January 1956 to \$2.85 billion, but exceeded the previous January record set in 1955, by one percent according to preliminary estimates prepared jointly by the U. S. Departments of Commerce and Labor. On a seasonally adjusted basis, outlays for new construction in January were at an annual rate of \$41.5 billion.

Private construction declined 12 percent in January, reflecting a slightly more than seasonal decrease in residential building. Industrial building continued the upward swing, which began in the fourth quarter of 1954, and established a new record for any month amounting to \$228 million. Commercial building (offices and stores, etc.) declined 7 percent, but reached a new January high of \$249 million, nearly one-third above expenditures in January 1955.

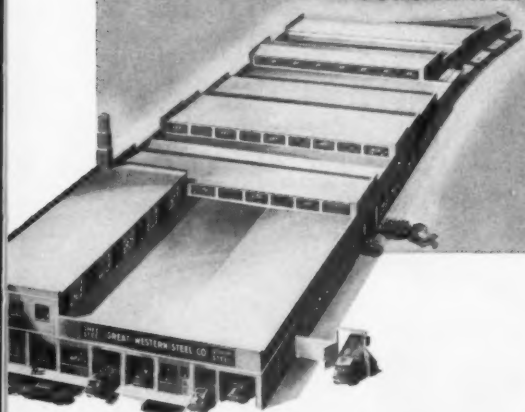
School construction accounted for much of the increase in expenditures.



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All-Directional—response is unaffected by direction of air flow

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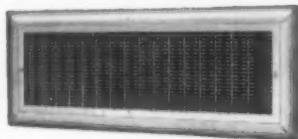
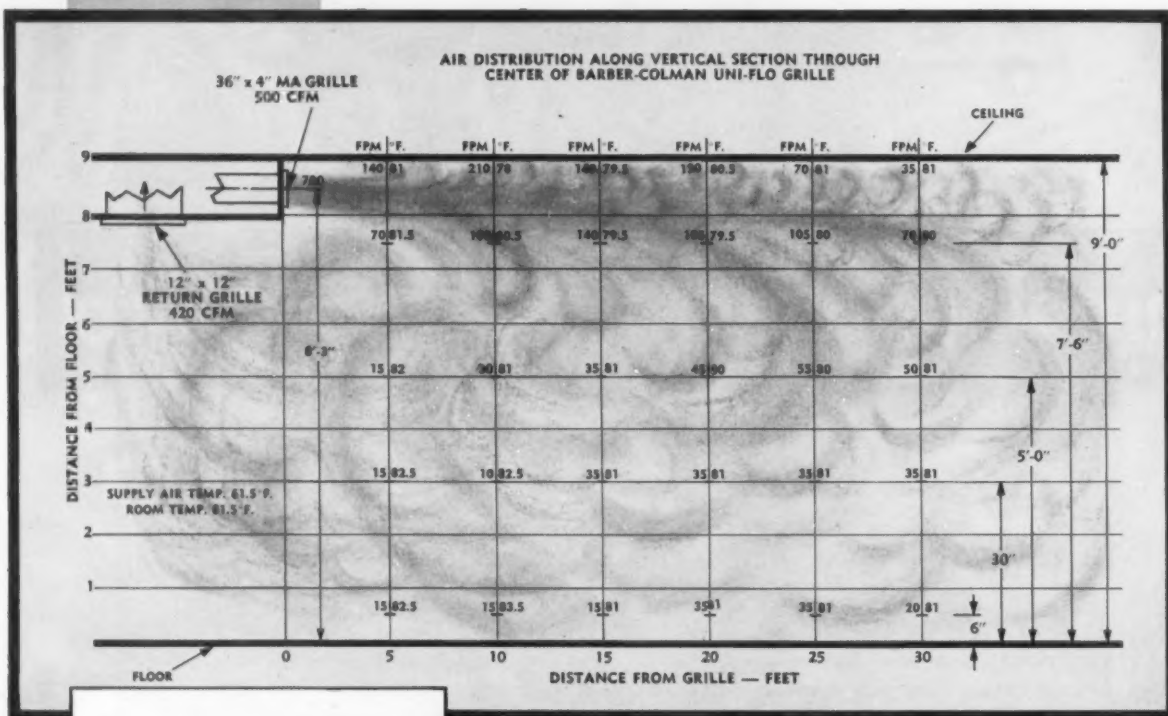
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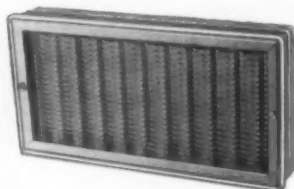
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Washington Letter

Government Studies Model Workmen's Compensation Law

Proposed example would help state courts determine validity of injury claims and might affect contractors' rising insurance costs resulting from courts' leniency in awards to on-the-job employees

By Arnold Kruckman

THE U.S. DEPARTMENT of Labor for over a year has been working on a model workmen's compensation law. The proposed law, according to Undersecretary of Labor Arthur Larson, is really intended purely as a model for consideration by the states and any organizations, units and experts who are interested in drafting a document that presumably contains the best provisions of acts of every state.

Undersecretary Larson and Director Paul Gurske of the Bureau of Labor Standards particularly emphasize that the model law is not intended for enactment by the Congress as a national law. They stress that it belongs wholly to the field of state legislation and is offered purely as a model for the states.

Mr. Larson and his associates insist that the job is not done yet and that it won't be done until the present draft, a voluminous document, has been distributed to the officials in labor law matters in the states, and the countless others including commissions, bar associations, carriers, unions, universities, individuals and organizations. Mr. Larson feels by the time all comments are received and added to the source material the collection will

make the most complete and current treasury of collective wisdom to be found anywhere. He says, "We do not expect the states will be so bewitched that they will immediately scrap their own acts and replace them with this one, word for word. But the everyday usefulness of the law undoubtedly will be to supply ideas for sections or portions of an act as the need arises for dealing with specific matters either for the first time or on a better basis than before. In general, we hope it will provide a rallying point for the movement now taking place on many fronts toward the modernization and rationalization of our country's oldest income insurance system."

Second Injury Fund Created

The people responsible in the U.S. Department of Labor realize only too well that the second injury phase discussed in the model law is an exceedingly troublesome question. They realize they have set out to accomplish something which may or may not prove feasible. They started with the original purpose of the second injury fund which was to prevent discrimination against the hiring of persons with physical handicaps the nature of which would be

an obstacle to employment. The obstacle was an unintended byproduct of the usual no-apportionment rule under which the employer who hired a one-eyed man had to pay the entire cost of total blindness when that man lost his good eye in a work-connected injury. It was said that between 7000 and 8000 one-eyed, one-legged, one-armed and one-handed men lost their jobs in Oklahoma within thirty days after the case of *Nease vs. Hughes Stone Co.* announced the non-apportionment rule.

When the second injury principle was developed it usually provided that a special fund should take up the difference between the final total liability and what the employer would have had to pay if the claimant had been "whole" when employed. At that time the problem of discrimination against the physically handicapped was largely confined to people with conspicuous loss of members. Since its inception, the law has entered the era of the heart case. As awards in heart cases become more prevalent, a problem arises of discrimination against job applicants with a history of heart trouble that is comparable to the original loss-of-member problem.

The challenge, then, is considered to be: Can the second injury fund plan be pressed into service to les-

WASHINGTON LETTER—

(Continued from page 29)

sen this reluctance to hire a man with a heart ailment?

Define Permanent Impairment

In order to meet this challenge, the draft of the proposed law begins by defining prior permanent physical impairment to include *any* permanent condition which is — or is likely to be — a hindrance or obstacle to obtaining employment. Then, to keep matters within the bounds of administrative feasibility, the draft adopts the arbitrary formula that has been in use in New York: The amount of reimbursement to the employer, instead of being calculated separately for different kinds of injury, is simply set at the excess over the compensation payable for 104 weeks. This kind of administrative simplification becomes unavoidable when you apply the second injury principle to death cases. The draft says that if the ultimate permanent total disability or death would not have occurred except for the pre-existing permanent physical impairment, the second injury rule applies and the employer is liable only for 104 weeks.

In order to keep this process from getting out of hand, and to avoid the possibility that some pre-existing impairment will be sought out and connected with the injury in every case, a registration requirement has been added. The employer must register, in advance of any injury, the names of handicapped employees with evidence of their impairment.

The Department of Labor people realize there is a considerable element of arbitrariness in the formula, and it makes added administrative work for employers and commissions; but at the same time they stress that they are very much impressed with the gravity of the problem they are trying to meet, and are willing to go to some trouble to solve it. The discussion about heart cases obviously has become a major issue; but they say they are sure employers under-

stand there are many other cases of degenerative diseases and more or less subtle impairments which now must figure in awards that would not have been made 20 years ago. Mr. Larson says if the efforts of the President's Committee on Employment of the Physically Handicapped and the many other organizations devoted to this cause are to continue to show results, it will be necessary to find an answer to the potential obstacle to employment of the increasing availability of workmen's compensation awards in these heart cases.

Better Laws Are Goal

It has been repeatedly stressed the objective of the model act is the attainment *not* of uniform laws but of better laws. However, in the instance of the clause on extraterritorial coverage, uniformity would be desirable for its own sake. Lack of uniformity produced two maladjustments, according to Mr. Gurske: Sometimes several state acts apply to the same injury, and sometimes no act applies. The former leads to uncertainty, to possible successive awards and to considerable inconvenience to employers and insurers who can never be sure when a case is closed. The latter leads to personal tragedies, like that of *House vs. State Industrial Accident Commission*. The principal was hired in Oregon by an Oregon company and was sent to manage a branch office in California. He was called to Oregon to attend a brief dealers' meeting, and in the course of this temporary visit was accidentally killed in Oregon. Unfortunately for his dependents, California requires the place of contract to be in California for an out-of-state injury, and Oregon requires the place of regular employment to be in Oregon. Compensation was denied first in California, and subsequently in Oregon.

The draft of the proposed law meets this situation head-on by mak-

ing the test of jurisdiction in a given state extremely broad. The act applies to the injury or death of an employee of a business which carries on any employment in the state, irrespective of the place where the injury or death occurs. Recognizing the essentially constitutional character of the question, and the difficulty of settling in a statute all the fine points that have figured in the many constitutional decisions on this point, the act states:

"In applying this provision due regard shall be given to the legitimate interests of the state in the protection and welfare of injured employees and their dependents and to the public policy of this state to provide an expeditious and convenient remedy under this act for residents of this state, whether employees (or their dependents) or persons entitled to payments for services rendered in connection with cases cognizable under this act, and for others likely to become public charges in this state as the result of injury or death occurring in employment by an employer as herein defined."

The idea here is to rule out jurisdiction over cases in which the state has none of the type of interests held in constitutional decisions to justify assumptions of jurisdiction by the state.

Increased Benefits Barred

A counter-balancing provision states that a person who has sought and obtained compensation, by award or settlement, in any other state is conclusively presumed to be subject to the law of that other state and not entitled to additional benefits in another state for the same injury or death. This is a studied attempt to undo the effects of a certain case which held that a claimant, after receiving an award in Illinois, could thereafter also get an award in Wisconsin where benefits were higher, for the difference be-

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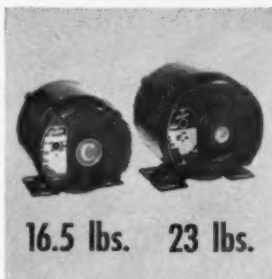
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 FOR REPLACEMENT...**

when you see the red "C" on the new weight-saving, space-saving "48-Frame" motors, you're assured of Century's *traditional industrial ruggedness*. For information and for fast service, call or write your nearby Century District Sales Office or Authorized Distributor.

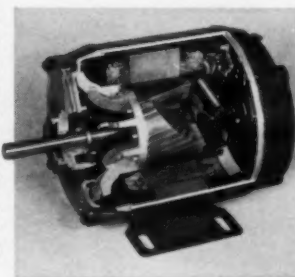
We Invite Your Comparison of...

engineering—Weight savings up to one-third are made possible without "skimping" on the vital "active materials", simply by eliminating dead weight and using new materials. The result is smaller-diameter motors that are not merely "just as good" but actually superior to the famous Century "56-Frame."



16.5 lbs. 23 lbs.

design—For time-saving maintenance, "GITS"-type oilers for sleeve bearings are placed high on the end-brackets, allowing easy oiling from either end of the motor... cluster-type integrally cast fan at the rear end of the rotor draws a steady stream of cooling air over the coilheads... "Square" stator iron permits air to pass between the core and shell, cooling the whole width.



Performance-Rated[®]
MOTORS
 1/20 to 400 H.P.



CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Missouri • Offices and Stock Points in Principal Cities

—a many splendored thing!

Beauty

Nesbitt Gas-fired Unit Heaters in their green hammertone finish have the smart styling that broadens their fitness for the most modern interiors—offices, stores, and showrooms—as well as for the usual industrial and commercial installations...

Utility

Seven sizes, with air capacities from 400 to 2900 cfm and heating capacities from 25,000 to 200,000 Btu per hour input, and their applicability to every type of gas and gas-air mixture give Nesbitt heaters a usefulness to cover practically every need...

Economy

Their well engineered structural quality, corrosion- and heat-resistant metals, uniform distribution of high-volume low-temperature air, ease of installation, space-saving and service-free advantages add up to quick, clean, quiet, economical heat for the user. Nesbitt's full stocks immediately available means small investment, fast turnover, full profit for you.

Some of these features may be found in units of other makes, but all of them in one gas-fired unit heater makes Nesbitt your best choice.

MADE BY JOHN J. NESBITT, INC., PHILADELPHIA 36, PENNA.

Sold exclusively through wholesalers—Publication 280.



Nesbitt

AUTOMATIC GAS-FIRED UNIT HEATERS

WASHINGTON LETTER —

tween the Illinois and Wisconsin benefits, since the acts of both states happened to apply.

The clause having the words "arising out of and in the course of employment" is interpreted thus: "injury" means mental or physical harm, including disease or infection, to an employee arising out of employment, and damage to or loss of prosthetic appliances." This change is made to widen the formula for work-connected injury. The act aims at completeness. It covers injuries, physical or mental, accidental or non-accidental, any kind of disease or infection, and injury to artificial limbs, etc. Independent contractors not having a separate business serving the public, and performing services related to the business of an employer are treated as employees.

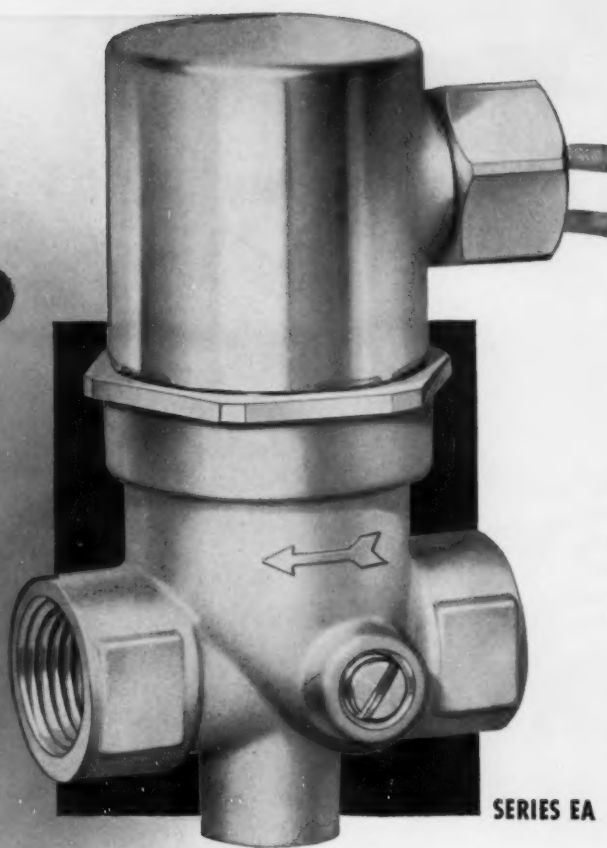
Claimant Is Protected

Provision is made for free choice of a physician by the employee from a panel of physicians named by the employer. No dollar weekly maximum is set for benefits, since wage levels vary; but it is recommended that the figures set for the weekly maximum be not less than two-thirds of the average gross weekly wages of all covered employees in the state. In the calculation of average wages, the proposed law permits the inclusion of wages from all regular employment, if the claimant has more than one job, regardless of whether the jobs are related. This provides a more realistic benefit in dual-employment cases, and although it will sometimes saddle one industry with a little more than its share of a particular accident's cost, the Department of Labor people think the small inequity will wash out in the end as between industries.

It is provided that if the injured employee is under 27 years old his average wage can be gradually adjusted to approximate what it would have been by the time he reached 27 if he had not been injured.

THE SOLENOID VALVE

*made for
all gases*



SERIES EA

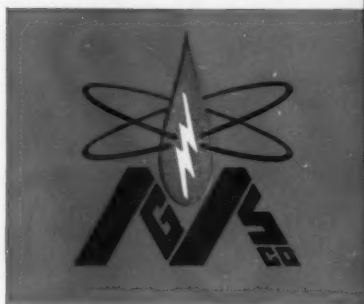
MGSCo solenoid valves handle all fuel gases—even sour gas. The internal parts of stainless steel and aluminum prevent damaging corrosion and assure long trouble-free life, continuing a record of control reliability famous in the gas industry.

Valves are available in $\frac{1}{2}$ " and $\frac{3}{4}$ " sizes and can be had with a pilot tapping on either side or both sides of the body.

Directly beneath the valve disc can be placed either a pressure tapping or a manual control screw to hold the valve open during periods of power failure.

Wiring is easy because the solenoid hood turns through 360° and the conduit attaching nuts turn easily to accept the tubing.

All sizes can be supplied in 20-volt models using transformer DA1 (three-terminal) or DA2 (two-terminal).



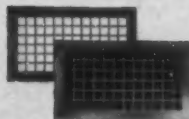
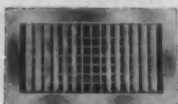
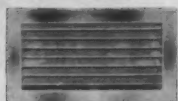
MILWAUKEE GAS SPECIALTY CO.

Dept. AA-9

MILWAUKEE 1 • WISCONSIN

GENERAL

the complete Quality line of



REGISTERS and GRILLES

for commercial cooling and ventilating

GENERAL REGISTER — a name now known thru the Industry for consistent quality — production-line quality of the standard of the sales sample.

A leader of the grille manufacturing field, with the finest of high-production, precision-tooled facilities, geared for volume output.

A product with the most advanced design features, including:

- Smooth, Solid Welded Frames
- Everything Streamlined
- Handsome Prime Coat Finish
- Original Silentite Damper
- Removable Damper Boxes
- Positive Stop Damper Setting

Investigate the Line that's "Second to None"!



GENERAL REGISTER
CORPORATION
14 FACTORY ST., CEDAR GROVE, ESSEX CO., N. J.

WASHINGTON LETTER —

There is included a passage that permits payment of the unpaid balance of a permanent partial schedule award to named defendants of an employee who dies from any cause before he has received full payment. This provision is thought to have considerable appeal on humanitarian grounds, and is therefore left optional. Other optional provisions include a more complete agricultural coverage clause, a state fund insurance section, and one or two other items.

Compromise payments are allowed only in permanent partial disability cases and only when the question at issue is the physical basis for compensation or extent of earning capacity impairment. The intent is to prevent indiscriminate lump-summing, and to confine compromises to the narrow range of controversies where a settlement will be to the interest of both parties. Violation of safety rules and failure to provide (or use) safety devices is penalized by a 15 percent increase (or decrease) in compensation. In the case of penalties against the employer for misconduct, the proposed law forbids the assumption of the penalty by the insurer; the intention is to make the penalty extreme enough to provide an effective deterrent to safety violations and misconduct.

The act has deliberately been made detailed rather than brief to anticipate litigation. Of course the discussion in this letter simply touches the highlights. Mr. Larson and Mr. Gurske and their associates anticipate an extraordinary response almost immediately. The draft of the proposed law was widely circulated, together with an invitation for comment, in mid-February. Employers and any others who are interested in reading the full 250 page document can write to Undersecretary of Labor Arthur Larson, U.S. Department of Labor, Washington 25, D.C., or to Mr. Paul Gurske, Director of the Bureau of Labor Standards, U.S. Department of Labor, Washington 25, D.C.

What's the



most important news



in the Air Conditioning

Industry Today?

turn the page



Unprecedented for Westinghouse

"More Cooling per Dollar" policy forces Westinghouse



Demand Air Conditioning!

Plant to round-the-clock operation



Up to 20% more capacity plus special low introductory prices on 1956 air conditioning

Here's price advantage with a giant plus. You can sell outstanding performance advantages too. The combination gives you the hottest sales story in the air conditioning industry. It means a top competitive position for you on every product—in every market!

Here's just one example! Now you can sell a 3-ton Westinghouse year-round air conditioner that is competitive in price with most "cooling only" units of a comparable size. In fact—the Westinghouse 3-ton is in the same price class as many competitive 2-ton units.

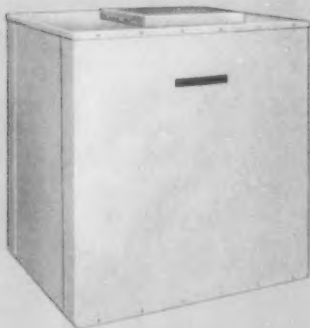
Three new residential units! These air-cooled condensing units have been added to the Westinghouse line of year-round units and water and air cooled summer air conditioning. Now you can handle any residential job at a distinct competitive advantage.

Special advertising allowances for old and new dealers alike. You get unprecedented help in promoting the outstanding price-performance story in the industry. Every prospect in your area will know about *your* Westinghouse Air Conditioning values.

WESTINGHOUSE AIR CONDITIONING

New Air-Cooled Condensing Unit introduced. Outstanding price- performance advantage!

This unit should double your residential sales. Now you can go after homeowners who previously couldn't afford air conditioning. Uses no water—can be installed indoors or out. Available in 2, 3 and 5 hp sizes. This unit could very well establish you in top position in the rich residential market.



There you are—

You've got product advantages!

—price advantages!

—plenty of ad support!

Pick up your phone now . . .

**CALL YOUR NEAREST
WESTINGHOUSE DISTRIBUTOR!**

They are all listed on the next page

Call or wire your nearest Westinghouse Distributor collect

ALABAMA

BIRMINGHAM
Flint Refrigeration Co.
127 S. 20th Street
Mr. Earl E. Allen, President

MOBILE
Associated Equipment Company
717 St. Joseph Street

ARIZONA

PHOENIX
Fresco Distributing Co.
21 East Durango Street
Mr. Walter A. Biddle, Mgr.

ARKANSAS

LITTLE ROCK
Fagan Air Conditioning Co., Inc.
900 Center Street
Mr. Jack W. Thompson, General Mgr.

CALIFORNIA

BAKERSFIELD
The Isotherm Co.
605 Williams St.
Rowell Smith, Co-owner & Mgr.

FRESNO
Air Conditioning Sales, Inc.
2208 Tuolumne Street
Nat N. Lees, Mgr.

INDIO
Frank Cavanaugh's Electrical Service
45-248 Jackson Street
Mr. Frank Cavanaugh, Owner

LOS ANGELES 17
Comfort Distributors Corp.
1709 W. Eighth St., Rm. 1125
Mr. Fred Wellhouse, Manager

COLORADO

DENVER 4
T. C. Alexander
1100-06 Champa Street
Mr. T. C. Alexander

CONNECTICUT

BRIDGEPORT 8
Air Conditioning Corp. of Connecticut
41 California Street
Mr. Robert Stember, Manager

FLORIDA

MIAMI BEACH
Tropicair Engrg. Co., Inc.
1840 Purdy Avenue
Mr. George Light

TAMPA 1
Tampa Armature Works, Inc.
401 South Morgan Street
Mr. M. D. McKee, Jr.

GEORGIA

ATLANTA
Raymond Distributing Company
156 Rogers Street, N.E.
Mr. T. R. Sockwell, Pres.

MACON
Aaron Torch & Sons, Inc.
452 First Street
Mr. Aaron Torch, Pres.

SAVANNAH
Mock Plumbing Company
925 E. 37th Street
Mr. William J. Ketchum

ILLINOIS

CHICAGO 44
Mid-States Air Cond. Equip., Inc.
4640 West Washington Blvd.
Mr. Marshall D. Segal, Pres.

PEORIA 2
O'Brien Distributing Co.
100 Walnut Street
Mr. C. A. O'Brien, Sales Engr.

INDIANA

EVANSVILLE
Evansville Electric Service, Inc.
1025 Reis Ave.
Mr. Chas. R. Legaman, Pres.

INDIANA (Cont.)

FORT WAYNE
Westinghouse Electric Supply Co.
New U.S. 30 & Meyer Road
Mr. H. W. Schelker, District Mgr.

GARY
G. W. Berkheimer, Inc.
1040 Washington St.
Mr. George Primich, Vice-Pres.

INDIANAPOLIS
Illingworth Construction & Engr. Co.
724 North New Jersey Street
Mr. R. J. Illingworth

IOWA

DAVENPORT
Gierke-Robinson Co.
210-212 E. River St.
Mr. E. W. C. Gierke, Partner

KANSAS

WICHITA
Hill Electric Air Conditioning, Inc.
307 Laura Street
Mr. N. Cengiz, Pres.

KENTUCKY

LOUISVILLE 4
Stewart Distributing Co.
1019 East Broadway
Mr. James G. Stewart, Owner

LOUISIANA

NEW ORLEANS 12
Equitable Equipment Co., Inc.
410 Camp Street
Mr. J. T. Knight, Jr.

SHREVEPORT
The Dykes Company, Inc.
1012 Market Street
Mr. O. J. Dykes, Jr., President

MARYLAND

BALTIMORE 15
Lloyd E. Mitchell, Inc.
4650 Reisterstown Road
Mr. W. P. Flanigan, Vice-Pres.

MASSACHUSETTS

BOSTON 10
Carlson Equipment Co.
10 High Street
E. E. Carlson, President

MICHIGAN

DETROIT 3
Temp-Matic Inc.
12320 Hamilton Avenue
Mr. T. H. Mobley, Gen'l. Mgr.

GRAND RAPIDS
Westinghouse Electric Supply Co.
511 Monroe St., N. W.
Mr. William G. Harper, Sales Mgr.

MINNESOTA

MINNEAPOLIS 6
Thomas & Thompson Air Cond., Inc.
2428 Riverside Avenue
Lynn E. Thomas, President

MISSISSIPPI

JACKSON
South Central Htg. & Plbg. Co.
2666 N. Mill St.
Seymour R. Pooley

MISSOURI

KANSAS CITY 8
Nalokin & Company
1924 Oak Street
Mr. Henry Gould, Vice-Pres.

ST. LOUIS 10
Nalokin & Company
5555 Manchester Ave.
Carl Bruechert, Vice-Pres.

SPRINGFIELD
Paul Mueller Company
P. O. Box 150
Mr. Paul Mueller, Pres.

NEBRASKA

OMAHA 5
Nalokin & Company
4001 Leavenworth Street
Mr. Henry Kleinkauf, President

NEVADA

RENO
Saviors Electrical Products Corp.
640 N. Sierra St., P. O. Box 531
Joe Bass, Executive Vice-President

NEW JERSEY

CAMDEN
Borstein Electric Co.
415 Broadway
Isidor A. Borstein, Owner

NEWARK 5
Westinghouse Electric Supply Co.
528 Ferry Street
E. W. Marek, Branch Mgr.

NEW YORK

BUFFALO 2
Buffalo Electric Co., Inc.
75 W. Mohawk Street
Charles E. Schuster, Vice-Pres.

JAMESTOWN
Sans Corporation
132 Blackstone Ave.
Marvin Friedman, Mgr. Air Cond. Dept.

NEW YORK 10
Times Appliance Co., Inc.
353 Fourth Avenue
Mr. C. J. Ward, Vice-President

ROCHESTER 3
Vanas & Gottemeier, Inc.
401 Webster Avenue
Robert E. Korts, Sales-Service Engr.

NORTH CAROLINA

CHARLOTTE
Air Conditioning Equipment Co.
P. O. Box 4095
John J. Tillston, Mgr.

RALEIGH
Morris & Gorrell, Inc.
316 West Cabarrus Street
Mr. W. F. Morris, Jr., Pres.

WINSTON-SALEM
Wall-Turner Heating & Air Cond. Co.
487 S. Stratford Road
Mr. S. W. Turner, Eng. & Mgr.

OHIO

CINCINNATI 2
The Kuempel Co.
1000 Gilbert Avenue
Hal K. Jennings, Vice-President

CLEVELAND 15
Unit Air Conditioners, Inc.
2336 Prospect Avenue
Mr. Hyman H. Weiner

COLUMBUS 2
The Kuempel Company
2572 High Street
Leon Kuempel, Pres.

TOLEDO 4
Air Conditioning Distributors, Inc.
602 Broadway
Mr. R. Myers, Pres.

YOUNGSTOWN 3
Carlson Electric Company
121 E. Boardman Street
Mr. E. C. Carlson, Pres.

OKLAHOMA

OKLAHOMA CITY
Air Engineering Inc.
26 N. E. 26th St.
Mr. E. M. Howe

PENNSYLVANIA

ERIE
Lakes Engineering Company
1316 G. Daniel Baldwin Bldg.
Mr. Thomas P. Gannon, Partner

PHILADELPHIA 31
Raymond Rosen & Company, Inc.
Parkside & 51st Street
Mr. Wm. Nealon, Builders Div. Mgr.

PITTSBURGH 1
Aircor & Heating Supply Co., Inc.
3811 Penn Avenue
Mr. Sanford Bausman, President

WEST VIEW, PITTSBURGH 29
W. J. Keist & Son, Inc.
322 Perry Highway
Mr. H. J. Spangler, Vice-Pres.

PENNSYLVANIA (Cont.)

WILKES-BARRE
AirCo Distributing Company
20 South Washington Street
Louis L. Popky, Partner

TENNESSEE

KNOXVILLE
Indoor Comfort Distributors Co.
520 Van Street
Mr. N. W. Bradley, Sales Mgr.

MEMPHIS 3
Associated Southern Industries
1161 Union Avenue
Mr. R. B. Buckingham, Mgr.

TEXAS

DALLAS
Stone Co., Inc.
1716 Plantation Rd.
Mr. Mirion Coever

EL PASO
Fred A. Lankford
2601 E. Missouri St.

FT. WORTH
General Engineering Corp.
118 South Main St.
Mr. W. C. Weeden, Vice-Pres.

HOUSTON
Nalokin & Company
6610 Supply Row
P. O. Box 5374
Mr. Al Nalokin

Star Steel Supply Co.
9411 Alameda
Mr. Morrie Perlman, Dist. Mgr.

JACKSONVILLE
Hillencamp Engineering Company
P. O. Box 209
Alton Hillencamp, Owner

LUBBOCK
Homer G. Maxey & Co.
1611 Fourth Street

ODESSA
Permian Air Cond. Inc.
2533 N. Grant Street
Mr. Lewis R. Bewley, Pres.

SAN ANGELO
Climate Engineering Company
2320 Sherwood Way
Mr. Kenneth Eschman, Owner

SAN ANTONIO
Alamo Air Cond. & Plmbg. Co.
A Div. of Alamo Lumber Co.
447 West Hildebrand Avenue
Mr. C. C. Collins, General Mgr.

UTAH

SALT LAKE CITY 1
Williams, Gritton & Wilde
204 Dooly Building
Mr. R. C. Williams, Partner

VIRGINIA

NORFOLK
Stokley's Services, Inc.
4000 Colley Avenue
John M. Stokley, President

ROANOKE
Davis H. Elliot Co., Inc.
11-13 Naval Reserve Ave., S.E.
Mr. Davis H. Elliot, Pres.

WASHINGTON, D.C.

Combustioneer Corp.
409 Tenth St., S.W.
A. E. Beitzell, Vice-President

WASHINGTON

SPOKANE 4
Warren Little & Lund
W. 609 Second Avenue
F. J. Lund, Partner

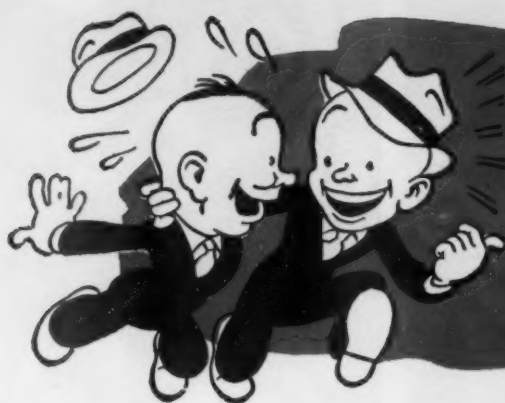
WEST VIRGINIA

CHARLESTON
Thrush Refrigeration Co.
1012 Virginia St., E.
Mr. R. D. Thrush, Owner

WISCONSIN

MILWAUKEE 7
Layton Supply Company
924 E. Russell Avenue
Mr. Howard B. Engles, President

YOU CAN BE SURE...IF IT'S **Westinghouse**



**Idea Exchange
for
Dealers, Contractors**

New Touches Add Pull to Promotion Ideas

Bolstering established merchandising practices with a little imagination provides effective low budget advertising

It's WHAT YOU DO and where that counts most in building sales volume, according to Arthur H. Johnson, president, A. S. Johnson Co., Inc., Washington, D. C. It is with the effectiveness of previous advertising campaigns conducted by this sheet metal and air conditioning dealer-contractor in mind that the annual advertising budget is set.

Giveaways Show Thought

The company has several effective sales promotional techniques. One is a giveaway present to all lady prospects for either heating or air conditioning equipment. The most popular gift with the ladies has been an attractive imprinted potholder containing a small magnet which clings to the side of a stove or kitchen cabinet and prevents the potholder from falling to the floor.

Another sales promotional stunt is the monthly direct mail piece sent to a selected list of 5000 previous and prospective customers. The mailing list was compiled by Mr. Johnson and the care used has been responsible for the high percentage of sales closed. The direct mail pieces are prepared by one of the office staff and each has a different approach. Sometimes they are duplicates of ad-

vertisements run in the local newspapers. This has proved to be of double value as the cost of preparing reprints of the ad is very small and a second reminder to a prospect adds impact to the original ad.

Each ad is worded to get the message across quickly, and yet provide sufficient information that will show the reader a solution to his particular problem. Ads are tied in with the season as well as with current events. Ads are varied to reach different types of prospects. For instance, one ad early in the summer was on central residential mechanical cooling equipment; a second on the same subject a week later was pointed toward the homeowner who couldn't afford the cost of mechanical equipment but who could afford to install an attic fan.

Special events are given special attention in the sales promotion planning. When the company entered its 80th year a full page ad was run in the Sunday newspaper. The company proudly announced that three generations of the Johnson family had dedicated their skill and service toward this milestone. The ad included photographs of all the men who have been presidents of the company. At one side of the ad was a list of dates and the events that each commem-

orated. The history of the company's first 80 years was quickly and interestingly presented.

A Message Unfolds

Reprints of this full page ad were ordered and on the back was printed wording that fell in a pattern to be read as the ad was unfolded. The page was divided into eighths and folded accordingly. The first fold the customer saw contained the company's name and address in the upper left hand corner for a return address, a space for typing the address of the person to receive the piece, and near the lower left hand corner in $\frac{1}{4}$ in. letters the three words, "Just in case —." When the recipient unfolded the piece the message continued, "You didn't see . . . or haven't heard . . ." in $\frac{5}{8}$ in. letters. The recipient's curiosity would lead him to the next fold where the message continued, "That we're mighty proud of our having helped in the growth of our nation's capital. See inside." This was in $\frac{3}{4}$ in. lettering.

A careful check is continually made against the mailing list and the pull made by each month's mailing. The list is continually being revised and new ads slanted toward those that have proven most effective.



NOT THIS! Many heating systems make people too cold one minute, too hot the next. They have to fuss continuously with the thermostat to get even near-constant comfort.



BUT THIS! Waterbury COMFORTROL By-Pass Heating always gives constant comfort. Simply set the thermostat and forget it. There is no "up-and-down" temperature variation.

New kind of heating gives constant comfort ...without fussing with the thermostat!

Things like fussing or not fussing with a thermostat can make the difference between happy or unhappy customers. That's one reason why you'll be ahead if you install new, effortless Waterbury COMFORTROL By-Pass Heating.

Once your customers set the thermostat, they can forget it. They'll get a continuous supply of fresh, clean, humidified air at just right temperature. They'll have *constant* comfort. There won't even be any hot and cold cycles or drafts. Tests show, too,

that temperature varies less than one degree between floor and ceiling. And Waterbury COMFORTROL—not the home owner—does the work.

It mixes cool air with warm air in a ratio that provides the exact temperature called for by indoor-outdoor thermostats. It supplies this warmth continuously at the same rate it escapes through walls and windows.

For a sales story that will weaken even a stubborn prospect, plus some good recommen-

dations after you've sold him, investigate Waterbury COMFORTROL By-Pass Heating.

SEND FOR FREE 32-PAGE BOOKLET!

"It Takes More Than Heat To Be Comfortable". It's packed with interesting information that will help you sell more units. Write Waterman-Waterbury Company, 1122 N.E. Jackson Street, Minneapolis 13, Minnesota.



Waterbury Comfortrol

By the makers of world-famous Waterbury furnaces and air conditioners



*you don't need a neck like this
to reach...*

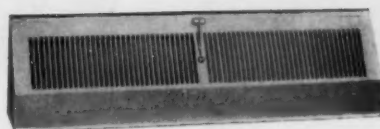
BIGGER PROFITS—LOWER COSTS WITH NEW AUER *"Perfusaire"* TRADE-MARK

The Auer Perfusaire perimeter register, with built-in damper, cuts installation time and costs up to 50% on heating, cooling and combination heating-cooling jobs.

Only 18 inches long, but with the capacity of 4 to 8 foot units, Perfusaire fits snugly against wall surfaces without unsightly gaps. Ready-to-install Perfusaire goes into the job without time-consuming fitting, cutting or use of filler strips.

Perfusaire is designed for quick, low-cost installation in or against plastered walls . . . inside or outside the baseboard . . . in new or old construction.

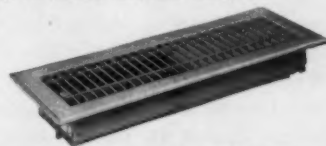
Check into the cost-saving advantages of Auer Perfusaire before you start your next installation—for complete information write for bulletin P-54.



Auer Perfusaire—fits 2¼" x 12" and 2¼" x 14" duct openings without cutting or fitting. For baseboard installation—provides a perfect upward fan-shaped air pattern for heating or combination heating and cooling systems.



Auer DRP—2¼" x 14" floor perimeter diffuser. Complete with built-in damper, adjustable fins, designed for easy installation in narrow spaces such as window sills, stair risers, etc.



Auer DRP floor perimeter diffuser—4" and 6" widths, 10", 12" and 14" lengths. For floor installation—features sturdy, adjustable fins and built-in damper—attractive appearance.

Auer

REGISTERS
and GRILLES

THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"
6602 CLEMENT AVENUE • CLEVELAND 5, OHIO

WHAT THE ASSOCIATIONS ARE DOING

NWAHACA Technical Conference Has Three Goals

- 1) Provide a forum to bring about more rapid release of association sponsored research
- 2) Present information to the industry on scientific and technological advances and their relationships to the warm air heating and air conditioning field
- 3) Provide design and engineering personnel with useful technical information

LATEST INFORMATION from both organized technical research and private experience will be presented May 24 and 25 by the National Warm Air Heating and Air Conditioning Association at its first annual Technical Conference for the industry at the Edgewater Beach hotel, Chicago.

An exchange of ideas, data and progress that affect the warm air heating-residential air conditioning industry will be the theme of this important new industry service.

HERE ARE HIGHLIGHTS

... from the agenda for NWAHACA's first annual Technical Conference:

- ▶ Heat Gain in Air Conditioning Ducts
- ▶ Pressure Losses in Fittings and Diffusers
- ▶ System Balancing for Year 'Round Air Conditioning in One and Two Story Residences
- ▶ The Application and Utilization of Nuclear Energy in Residential Heating and Air Conditioning
- ▶ Heating the Split Level Home
- ▶ Solar Energy As a Source for Heating
- ▶ Air Conditioning Using Gas As the Energy Source
- ▶ Venting the Furnace
- ▶ The Impact of Electrical Resistance Heating in Year 'Round Air Conditioning
- ▶ The Physiological Reactions to Air Conditioning

Scheduled presentations run the gamut of usable information from discussions of venting a furnace to physiological reactions to air conditioning. Reports will be made on research activities at the University of Illinois and University of Minnesota, NWAHACA and company sponsored research, new product developments and other

technical data of value to industry members.

The conference will be open to all members of the warm air heating and air conditioning industry. Registration fees are \$20 per representative of association members, \$30 for non-members and their representatives. Advance registration cards and reservation requests have been mailed by the association; other registration information may be obtained from the office of George Boeddener, managing director, 640 Engineers Building, Cleveland 14.

Plans are being formulated by the association's technical conference committee under the chairmanship of Frank J. Nunlist, Mueller Climatrol Div., Worthington Corp.; K.T. Davis, Carrier Corp.; F.L. Meyer, Meyer Furnace Co., C.W. Nessell, Minneapolis-Honeywell Regulator Co.; A.B. Newton, Coleman Co., Inc.

Pittsburgh Wholesalers Sponsor School

THE NATIONAL HEATING & Airconditioning Wholesalers, Inc. reports that the heating and cooling dealer management school sponsored by Pittsburgh trading area wholesalers in cooperation with the University of Pittsburgh was an outstanding success. At the conclusion of the course, the sponsoring wholesalers held a banquet for the faculty and dealers who participated in the school. A. J. Luppino, All Air Products Co., was chairman of the school representing all of the sponsoring wholesalers, who are, in addition to the All Air firm, Bailey-Farrell Co., Demmler Bros. Co., Eckstein Co., A. H. Johnson Co., McClure-Johnston Co., Myers Furnace Supply Co., Proie Bros. Co., Shamblen Furnace Co., and S. E. Williams Supply Co.

Following the banquet, the guests were separated into groups of six each. Each group selected a chairman and decided on a question to ask the speakers regarding any subject that had been covered at the school, and the speakers then reviewed the subjects chosen.

(More Association News on page 46)

Unexcelled for clean-burning, high temperature fires

THE ALL-NEW U.S.-CARLIN "150 SERIES"

Designed exclusively for flange mounting on any furnace, boiler or water heater with minimum tube opening of 4 1/4" diameter.

MOTOR—1/8 H.P. long-hour duty with safety overload control. Complies with NEMA mounting specifications.

TRANSFORMER—10,000 volt. Shielded to eliminate radio and TV interference.

AIR TUBE—Steel, 4 1/4" O.D.

AIR DEFLECTOR Baffle—Adjustable: For positioning of fire. (Model 150F only)

FAN—Precision balanced. Mounted directly on motor shaft.

NOZZLE—Stainless steel alloy. Hollow cone spray to conform to burner air pattern.

FUEL UNIT—Single-stage with built-in strainers and pressure regulating valve. Two-stage fuel unit available on special order.

ELECTRODE ASSEMBLY—Lifetime phosphor bronze bus bars. Nichrome steel electrodes with full-glazed porcelain insulators. (Model 150SF-2 has counter-bored insulators.)

HOUSING—One-piece cast iron. Designed for efficient air delivery and smooth, quiet operation. Machined to rigid standards.

AIR SHUTTER—Assures uniform 4-way air intake.

COUPLING—Universal type with rubber center piece.

GRADE OF OIL—No. 2 U. S. Government Commercial Standard CS12-48.

CONTROLS—Thermostat, Limit Control and Stack Relay.

ELECTRICAL CHARACTERISTICS—115V, 60 cycle, 1725 R.P.M.



Model 150F
with Carlin Head
Capacity: 0.55 to 1.50 G.P.H.

They Outsell Because They Excel

Model 150SF-2
with High Temperature
Combustion Head (Shell Head)
Capacity: 0.55 to 1.31 G.P.H.



Plus these important
features offered in
Model 150SF-2

**HIGH TEMPERATURE
COMBUSTION HEAD
(SHELL HEAD)**

For cleaner, more efficient firing
... and proven fuel savings up
to 36%.



**VEE-FLAME
CONTROL**

The cone flame is quickly,
easily obtained by turning
an adjustment nut.



**SHUTTER-COVERED
OIL VALVE**

Assures proper fuel-air
ratio... clean combustion
... no heat-wasting vent.

For complete details of U.S.-Carlin's flange mounted "150" series, contact your wholesaler or write...

THE CARLIN COMPANY - WETHERSFIELD, CONNECTICUT

NEW LIGHTWEIGHT AND



NEW 1956 CHEVROLET

MIDDLEWEIGHT CHAMPS!

Just arrived...New champs of the lightweight and middleweight haulers! New Chevrolet trucks bring you higher capacities, new hour- and dollar-saving power and performance—plus new and exclusive Task-Force features!

A Modern V8 for Every Model! Short-stroke, engine-saving power in the most modern of all V8's. Standard on some models, optional at extra cost on others.

New, More Powerful Sixes! New gas-saving 6's with 8.0 to 1 compression standard on all lightweight and most mid-

dleweight Chevrolet trucks.

Wider Range of Drives! Hydra-Matic now available in even more models! Revolutionary new Powermatic and 5-speed manual shift in new 5000 and 6000 series trucks! All extra cost.

Tubeless Tires Standard on All Models! Other modern

features include High-Level ventilation and concealed Safety Steps.

New, higher capacities! Many new middleweight champs are rated clear up to 19,500 lbs. G.V.W.! See them at your Chevrolet dealer's. . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET



TASK-FORCE TRUCKS



NEW OFFICERS go over convention program with speaker C. W. Nessell (center). At left is Z. V. Hazelton, first vice president, and on the right is president Don McCloskey



RECOGNITION of faithful services rendered the association by H. M. Daily (left) is commemorated in the plaque being awarded by Charles Buck. Russell A. Harris, president for 1954-55, also was awarded a commemorative plaque.



QUARTER CENTURY CLUB elected Calvin D. Ulery president (left). Charles Buck (center), 1955 president, congratulates the new president as H. W. Meggs (right), new vice president, awaits his turn

Indiana Dealers Advise on Management, Technical Problems

THE LARGEST ATTENDANCE RECORD in recent years was established at the 38th annual convention of the Sheet Metal and Warm Air Heating Contractors' Association of Indiana in Indianapolis on Feb. 2-3. The convention program headlined C. W. Nessell, chairman, Field Investigating Committee, National Warm Air Heating and Air Conditioning Association, who pointed out the ills of the industry in his discussion, *We Are in a Heating Mess*. The program also included two fast moving forums — one on business management, the other on technical problems and their solution. Other qualified speakers and entertainment completed the jam-packed program.

A new slate of officers was elected. They are: Don McCloskey, president; Z. V. Hazelton, first vice president; J. W. Ridgway, second vice president; J. R. Walker, treasurer; and Frank E. Anderson, secretary. Elected as directors were Ben Flock; Russell A. Harris, L. W. Widney, and John Hartmann. Retained as directors for another year are Harold D. Boyd, William E. Garber, Jr., Maxwell Goff, and H. W. Meggs.

The Quarter Century Club, made up of members of the association with 25 years or more in the heating and sheet metal field, elected Calvin D. Ulery, president; H. W. Meggs, vice president; and Frank E. Anderson, secretary-treasurer. This group proposed and passed a resolution to award to the outgoing president of the association some type of recognition for the services he had rendered. This year the recognition was in the form

of beautifully designed and engraved bronze plaques mounted on hardwood bases. The plaques were awarded H. M. Daily, president 1952-53, and Russell A. Harris, president 1954-55.

The Indiana Fur-Mets (salesmen's auxiliary) elected Al Nemec president with Charles Buck, Hugh Harrigan and T. A. Burke as vice presidents to assist him in planning the entertainment for the 1957 convention.

In describing the problems of the warm air heating dealer, C. W. Nessell made these suggestions as aids to turning out better installations: 1) Put in additional supply stacks to second floor rooms when remodeling an existing two story house for a summer cooling system; 2) treat lower level of multi-level houses as any other slab floor heating system — consider the lower level as a separate zone; 3) do not trust project builder to assume responsibility for heating system performance as experience of many dealers indicates that builders will not follow through on any guarantee they may agree to in order to obtain the lowest priced bid; 4) develop a program of public education at the local level as to what a good heating system really contains.

Speaking on the new ruling of the State Unemployment Compensation Department of Indiana, W. E. Garber, Jr. advised all warm air heating dealers and sheet metal contractors using four or less employees to watch the use of part time help. Mr. Garber said that

(Continued on page 50)

PEXTO Furnace
collar edging
rolls with new
non-slip, non-glare
PEXTITE finish.



NOW...PEXTO ROLLS WITH

PEXTITE

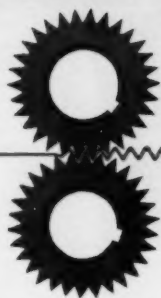
← FINISH →
for tight grip... positive feed



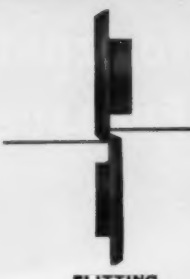
THIN TURNING



THICK TURNING



CRIMPING



SLITTING



ELBOW EDGING



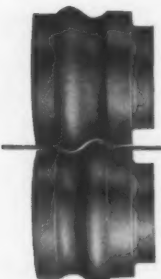
FLANGING



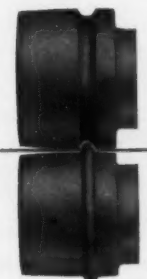
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BURRING



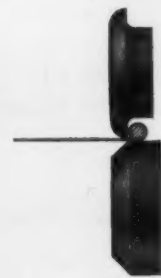
OGREE BEADING



SINGLE BEADING



FURNACE COLLAR
EDGING

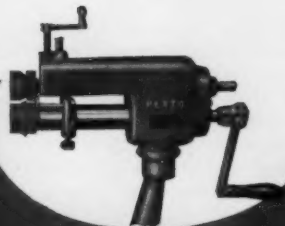


WIRING

PEXTO

*The oldest name in modern
sheet metal fabrication*

The positive feed of every precision-engineered PEXTO roll is assured with the new, non-slip, non-glare, durable PEXTITE finish. Today all PEXTO rolls are Pextite-protected for better performance and longer roll life.



PEXTO 421—Furnace Collar Edging
Machine featuring Pextite rolls.

THE PECK, STOW & WILCOX COMPANY, SINCE 1785, SOUTHTON, CONNECTICUT, U.S.A.

IT'S MONEY IN
YOUR POCKET TO
Investigate the
Versatility of
MONCRIEF
Horizontal
Furnaces

4

**Gas Fired
Oil Fired
SIZES**

GAS FIRED: 140,000, 120,000,
100,000 and 80,000 Btu Input.

OIL FIRED: 224,000, 123,000,
101,000 and 85,000 Btu at Bonnet.

**Unlimited Advantages for Home
Builders—with Extra Dollars for You!**

For your builder customers — always seeking opportunities to save on precious floor space — the Moncrief Horizontal Furnace can be hung from the ceiling, up and off the floor in garages, in utility rooms and on porches; can be laid across attic joists or located in "crawl" spaces.

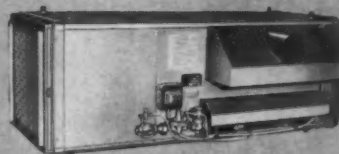
For you — the distinctive engineering, sound construction, unique ease of installation and trouble-free operation of Moncrief Horizontal Furnaces are provided at down-to-earth, *competitively low prices* so that you can meet competition and still make a satisfactory profit.

THE HENRY FURNACE COMPANY

HEATING AND AIR CONDITIONING UNITS

● With Gas Fired Moncrief Horizontal Furnaces, you'll discover new freedom for more flexible installations in smallest spaces, because —

1. Gas Burner and Manifold install on either side — front or rear.
2. Thus, Discharge and Return Air can be taken off either end.
3. Plus, Flue Outlet locates on either side — front or rear.
4. So, Flue Outlet and Gas Burner will install on opposite sides.
5. And, Flue Collar adjusts to Horizontal or Vertical position. — providing the ultimate in convenience for location of gas piping, air ducts and chimney, with unequalled accessibility!



As shown, the Moncrief Gas Fired Horizontal Furnace is shipped completely Wired and Assembled, ready for speedier installation.



Exposed view shows drawer type Filter Frame, accessible Blower Compartment, Gas Manifold and Flue Outlet.

● Oil Fired Moncrief Horizontal Furnaces are equally compact, providing many of the same space-saving features as the gas models, with —

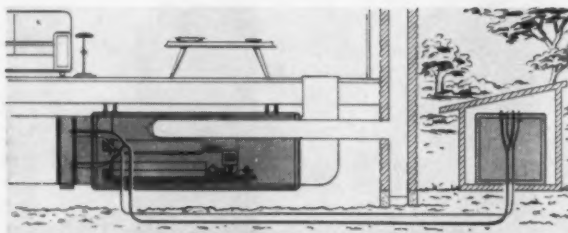
1. Safe, easy suspension or mounting on four pipe sockets, located at both top and bottom of casing.
2. Plate Mounting of Oil Burner on four, welded spacer studs.
3. Quieter, cleaner, more economical operation of the Moncrief Oil Burner.
4. Counterflow delivery of air over large heating surfaces. — combining unusual ease of installation with unmatched oil burning performance.



The Moncrief Oil Horizontal Furnace is shipped, in the three smaller models, with Heating Element, Blower and Motor completely assembled in the Casing. Illustration shows easily mounted Oil Burner installed on the job.



Cut-away view, illustrating Blower, Radiator, Radiation Shield and Combustion Chamber.



COMPACT YEAR 'ROUND AIR CONDITIONING: Moncrief Gas Fired Horizontal Furnace is shown installed in a "crawl" space with Cooling Coil installed in Duct, taken off Air Discharge end of furnace. Air Cooled Refrigerant Unit is remotely installed, out-of-doors.

GET PRICES — CATALOGS FROM MONCRIEF WHOLESALERS

If you have not been competing satisfactorily for horizontal furnace installations, you owe it to your profits to see your Moncrief Wholesaler, today. You'll get the facts on the really up-to-date, advanced line of both Gas and Oil Horizontal Furnaces — backed by Moncrief's 60 years of manufacturing experience!

Medina, Ohio

MONCRIEF

FURNACE PIPE AND FITTINGS

Smoke Pattern proves there is a difference in perimeter heating and cooling

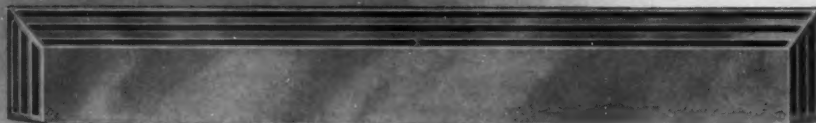
TITUS

Perimeter Diffusers are engineered for

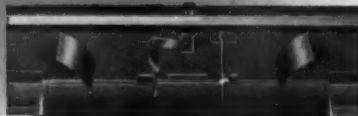
100% DIFFUSION EFFICIENCY

Locating an outlet at the perimeter of a building will not insure a better job. IT'S THE DIFFUSER THAT COUNTS.

Here's Why Titus
Perimeter Diffusers
Outperform
All Others



- Exclusive Titus baffles assure constant 180° diffusion. Fixed boot opening eliminates changing air pattern by relocating opening.
- No pattern change due to damper movement.
- Exclusive Titus baffles and fixed boot opening keep pattern constant at high or low air flow rates.
- Low pressure loss, high capacity requiring less duct runs.
- Greater free areas incorporated with baffles, insuring less turbulence, eliminating drafts and temperature stratification.
- Air directed to higher room levels for efficient cooling and in a broad fan for blanketing wall during heating.
- Saves labor. No metal cutting...no damper installation or other time-consuming problems.
- Diffusers completely assembled...ready to install.



**SEND FOR FREE
CATALOG TODAY**



Titus Manufacturing Corp., Waterloo, Iowa
Gentlemen: Please send me free catalog, including comprehensive engineering data on new TITUS PERIMETER DIFFUSERS.

NAME

COMPANY

ADDRESS

CITY

STATE

WITH THE ASSOCIATIONS

(Continued)



LIST OF 200 technical questions for presentation to panel of engineers is discussed by (from left) William E. Garber, Jr., Bill Miller, Ben Speaker, Jim Ridgway and K. E. Glancy

any employee that works at least one hour out of a week for as many as 20 weeks within one year can apply for and receive unemployment compensation. The new ruling, according to Mr. Garber, is especially effective against small businesses because the use of four or more employees within any week for the period mentioned brings the employer under the three percent assessment clause.

The contractor business panel moderated by W. E. Garber, Jr. and staffed by H. M. Daily, M. L. Thompson, A. C. Tilley and Tom Mutz presented their business management experiences as dealers and contractors on the various matters encountered daily in this field. Mr. Garber cautioned against the hidden costs of doing business and explained how the successful manager continues to analyze his estimates to locate those items overlooked at the time of the original estimate. Mr. Daily suggested that the contractor regard each mistake located as an expensive lesson and avoid repeating the same mistake a second time. Mr. Thompson told how his company checks each job installed. When charges are found that had not been included in the original mark-up as over-



FUR-METS' NEW PRESIDENT, Al Nemec, entertains some friends. From left are Al Nemec, Earl Strong, Frank Davenport, Robert E. Sherwood, Homer Selch, Chris Sorensen and Keith Anderson

head, the charges are added to the semi-annual revision of the overhead percentage figure. Mr. Tilley outlined the six major insurances carried by a contractor and remarked that he felt the first five were necessary to stay in business; the sixth was a worthwhile insurance to carry. He listed these as: Workmen's Compensation, General Liability, Truck and Auto, Unemployment, Inventory and Real Estate. Mr. Mutz pointed out that salesmen are a necessary selling expense and they should be selected with care. He suggested that all prospective salesmen take a series of tests conducted by an aptitude testing bureau and that only those passing the test be hired.

The technical information panel was moderated by J. W. Ridgway. The panel consisted of representatives from six manufacturers' engineering staffs. On the panel were Duane Williams, Glen White, Albert H. Buermann, Dan Codella, Jerry Keller and L. L. Feeney. The panel was given a list of 200 technical questions dealing with air conditioning, oil heating, gas heating, control systems and the heat pump. Each member of the panel gave his version of the solution to each of the questions that covered the field most familiar to him.

Minnesota Contractors Hold Tenth Convention

THE 10TH ANNUAL CONVENTION of the Sheet Metal and Roofing Contractors' Association of Minnesota was held February 16 to 18 in Minneapolis. Elected officers for 1956 are Harry Quade, Jr., president; Fred Kuettel, Jr., vice president; Oz Christen, secretary; and Herman Hertzner, treasurer. Directors elected for two years are Leonard Edwards, Walker Jamar, Jr. and Chris Lee. Retained as directors for one year are Willard Ahrens, Harold Ofenloch and David Diamond.

The three day convention program included an address by C. W. Nessell, chairman, Field Investigation committee, National Warm Air Heating and Air Condition-

ing Association, who outlined many of the practices being followed by warm air heating and residential air conditioning dealers today. Mr. Nessell quoted many good practices as well as some of the poorer practices being followed. He concluded with suggestions that would help raise the prestige of the industry if carried out.

Another feature of the convention was a five man panel, each member of which told about a way that would aid contractors in making a more favorable profit on each job.

A complete report on this convention will be published in the April issue of American Artisan.

(More Association News on page 54)

Now... sell the mass market with the new ~~fluid heat~~ units for small and medium homes!

Here's what you can offer large-volume builders:

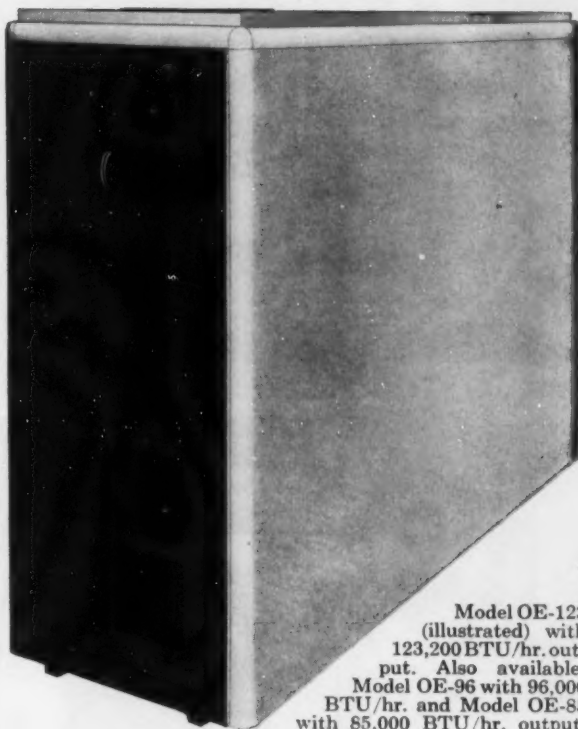
- Famous Fluid Heat quality in a competitively priced unit
- A complete range of models and sizes
- The most advanced heating unit— attractively designed
- Satisfied customers, with no comeback

This new line of quality-built Fluid Heat heating units is designed and *priced* to sell the small-to-medium home building trade. The same famous Fluid Heat advanced construction and features—only the frills are left off to put you in the best competitive position. Shipped completely assembled and wired; burner installed at site. Sell the line that's out in front in style, features and price—mail the coupon for more details.



NEW! Fluid Heat Glass-Lined Direct Oil-Fired Water Heater Fully-Automatic

Designed for efficiency and beauty... built to *last*. Heavy steel tank lined with glass completely covered by heavy Fibreglass insulation to prevent heat loss. Steel jacket with beautiful gray baked-enamel finish. All fittings copper or brass. Fits snugly in kitchen or basement playroom. The most efficient, permanent hot water heater you can sell! Send coupon for more details.



Model OE-123 (illustrated) with 123,200 BTU/hr. output. Also available: Model OE-96 with 96,000 BTU/hr. and Model OE-85 with 85,000 BTU/hr. output.

fluid heat
AUTOMATIC HEATING EQUIPMENT
"WORLD'S ECONOMY CHAMPION"

MAIL NOW FOR FULL DETAILS

ANCHOR POST PRODUCTS, INC., Fluid Heat Division
6720 Eastern Avenue, Baltimore 24, Md.

I want to know more about a Fluid Heat Dealership. Send me information on the complete line.

Company Name

My Name

Address

City Zone State

PINPOINT COMPRESSOR PERFORMANCE TO YOUR APPLICATION WITH

Tecumseh



MODEL S3N14 1/8 H.P.



MODEL S2S16 1/2 H.P.



MODELS S7N16
S7R16 3/4 H.P.



MODELS B7616 1/4 H.P.
B1S16, B1612 1 H.P.



MODELS B32P16 1 1/2 H.P.
B74T16 2 H.P.

THE ONLY COMPLETE LINE OF HERMETIC AIR CONDITIONING COMPRESSORS



MODEL JA150 1 1/2 H.P.

THE WORLD'S LARGEST
PRODUCER OF COMPRESSORS
FOR THE REFRIGERATION INDUSTRY

THREE PHASE



MODEL FB500 5 H.P.

SINGLE PHASE



MODELS JB200 2 H.P.
JE300 3 H.P.

THREE PHASE



MODELS JB200 2 H.P.
JE200 3 H.P.

OVER 21,000,000
COMPRESSORS
IN USE TODAY

15 compressor models
1/3 thru 5 h.p.

AIR OR WATER COOLED APPLICATIONS

FURNACE UNITS · WINDOW COOLERS · STORE COOLERS · WATER CHILLERS

Tecumseh's complete line of hermetic air conditioning compressors lets you pinpoint the compressor that is "performance matched" to your particular requirements. Engineered and tested to meet the increasing demand for air conditioning, Tecumseh's new line with 15 compressor models offers you flexibility of design, plus quietness and efficiency under the toughest possible conditions. All models deliver full tonnage within the horsepower range and are designed to meet new code

restrictions covering power factor and current limitations. The larger sizes are available for single or three phase and by changing only the electrical components, the basic compressor can be used for water or air cooled applications. Add these features to compact size, light weight and low cost, and you'll agree it pays to have a choice when your choice is Tecumseh. Write today for Bulletin #100 containing detailed information and specifications concerning Tecumseh's new line of Hermetic Air Conditioning Compressors.

TECUMSEH PRODUCTS CO. *Tecumseh, Michigan*



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IF YOU HAVE A STAKE IN NEW CONSTRUCTION

anywhere in the 37 eastern states, Dodge Reports will tell you daily what's coming up, the man to see, what the job requires, when bids are due, who gets the contracts. They give you all the information you need to plan ahead... to pick and choose the jobs you want.

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COMPANY _____

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CONVENTION PROGRAM committee goes over the compensation insurance report to be made by Alfred B. Hoftiezer (right). Committee members (from left) are Joseph Homka, Fran Bockhardt and F. Van Pils



JOHN C. SCHEEL (left) presents Richard W. Friday with a condensed copy of the Cleveland heating code. Oscar K. Acer, Jr. waits to ask a question of Mr. Scheel

New York Contractors Learn About **Selling, Codes and Metal Roof Deck**

GOOD BUSINESS MANAGEMENT policies and the training of sales personnel are two of the problems faced by most warm air heating dealers and sheet metal contractors. Ways of solving these problems were suggested by Ray F. Horan, merchandising manager, General Controls Co., to members of the New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association at their 33rd Annual Convention in Utica on February 6-8. Other subjects of importance were *Heating Codes and Licenses*, described by Jack C. Scheel, chief heating inspector, Cleveland, O., and *Installation Problems of Metal Roof Decking* discussed by Victor G. Pignolet, manager of sales, Roof Deck Div., Inland Steel Products Co.

The election of officers for 1956 saw Irving Spalty made president with Richard B. Millard as first vice president. Percy Sullivan became second vice president. Clarence J. Meyer was elected secretary for the 21st consecutive time. William C. Kirkpatrick was re-elected treasurer. Directors elected for three year terms were William R. Nolder, George Ballard, Jr., and Donald O. Argy.

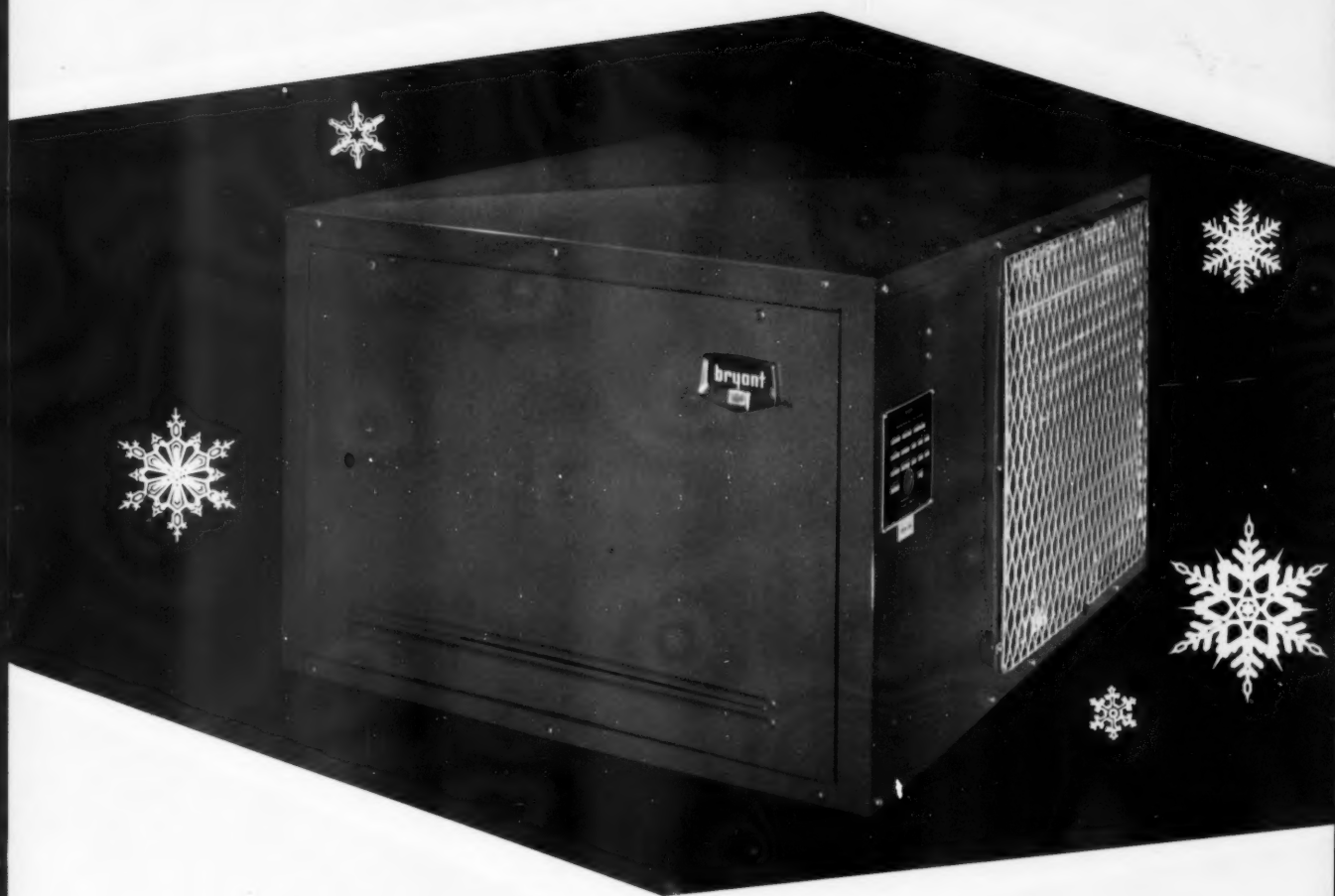
The Merchandisers held their annual meeting on February 6 and elected the following officers: A. R. Wheeler, president; Richard G. Jones, first vice president; Eugene D. Trescott, second vice president; George F. McCory, secretary; J. J. O'Donnell, treasurer; and Otto F. Blaske, sergeant at arms. Directors for 1955 were re-elected to

serve another term. They are A. A. Stagg, J. W. Thompson, J. W. Stoner and David Levow.

In advising the dealers on the art of effective selling, Ray F. Horan broke the process of making a sale into three distinct classifications. He called them arts of prospecting, of presentation and of closing. Elaborating on each of these arts, Mr. Horan suggested that the most successful prospectors were those salesmen who developed the technique of immediately making the prospective customer feel at home. Mr. Horan said if a salesman is able to get the prospects to talk about themselves, he will find out a number of things that will aid in locating other prospects and in the second step of the sales approach-presentation.

Speaking about the development of a good presentation, Mr. Horan suggested that every salesman would find a "canned" story to be the best method of getting his story across to the prospect. Such a story, rehearsed and perfected, permits the use of gestures and demonstrations that help the prospect to see the complete picture. Also, he said, the salesman can make his "pitch" in a professional manner — one that convinces the prospect that this man knows his product and its capacity.

The third step in a sale, the closing, according to Mr. Horan, cannot be started until the prospect has received all of the answers to questions that have come to his mind. No closing can be effective and enduring unless



GROW BIGGER WITH



HERE'S ONE WAY YOU CAN
GROW BIGGER WITH

bryant

**THE MOST TERRIFIC COOLING PROMOTION
EVER OFFERED!**

GIVE YOUR CUSTOMERS
ABSOLUTELY FREE

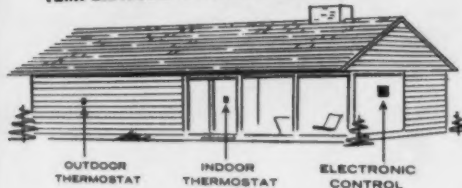
\$22500

in electronic
home comfort
CONTROLS

LIMITED TIME ONLY



YOU GIVE YOUR CUSTOMERS THE FAMOUS
HONEYWELL ELECTRONIC MODUFLOW
TEMPERATURE CONTROL SYSTEM



COMPLETE YEAR 'ROUND HOME COMFORT
regardless of temperatures outside. Your customers
have read about this system in Life and other
national magazines.

OFFER YOUR CUSTOMERS EITHER:

1. No payments 'til cooling season, or

2. No money down — 36 months to pay

FOR FULL DETAILS CALL YOUR BRYANT DISTRIBUTOR TODAY!

and here are 8 more reasons why

you'll grow bigger with BRYANT . . .

1. Your customers know and trust the name Bryant . . . famous for 47 years as the leading name in home comfort.
2. From small home to mansion there's a Bryant to fit the budget and the need in gas or oil furnaces, boilers, air conditioners, space heaters, unit heaters, water heaters.
3. You build customer confidence when you install Bryant . . . the highest quality home comfort equipment built.
4. You profit more with Bryant because of the Bryant dealer development program, the most complete in the industry.
5. You get sales building tools that increase sales and profits.
6. You have the help of a nearby Bryant distributor who gives you complete engineering, sales and service help.
7. You are backed by powerful national advertising.
8. You get complete co-op advertising to build sales in your own community.

Don't miss this tremendous cooling promotion. It's a complete package that will bring prospects for home cooling to **YOU**. For the name and address of your Bryant distributor write, Bryant, 48 Monument Circle, Indianapolis 4, Indiana.

Left, above
AIR COOLED UNIT — MODEL 560

No worry over water restrictions or high water rates. Brings clean, cool, healthful indoor weather no matter what outside temperatures are.

Right, above
"COMMAND-AIRE" TWIN UNIT — MODEL 590

The model that puts complete home air conditioning within the reach of every homeowner. Cools, dehumidifies, filters and circulates the air.

**BE MR. B IN YOUR COMMUNITY
AND GROW BIGGER WITH BRYANT**



bryant

WITH THE ASSOCIATIONS

(Continued)



RAY F. HORAN (second from left) pins his lapel button on Irving G. Spalty, making him a member of the "Management Club." F. Van Pils (left) and Clarence J. Meyer (right) proudly display their membership buttons



METAL ROOF DECKING is discussed by (left to right) Ase Hall, Victor G. Pignolet, A. V. Randazzo, Percy Sullivan and George Ballard, Jr.

the salesman has completely convinced the prospect that satisfaction of the prospect's needs can be achieved. Mr. Horan advised that the closing be done as inconspicuously as possible and that the right time to ask for the order is something that a good salesman will learn to recognize. He advised that as soon as the order is obtained, the salesman should excuse himself as quickly as possible, as further conversation can add nothing more of benefit to the customer.

The importance of a good heating code and its enforcement was outlined by Jack C. Scheel based on his experiences in the metropolitan area of Cleveland. Mr. Scheel described the installation of poor and faulty heating systems by unskilled persons. In order to protect the purchaser against such unqualified persons, he said, the Cleveland heating code requires that all installers be registered with the inspection department.

Mr. Scheel described the advantages and disadvantages of the two methods commonly used to control the activities of persons permitted to install heating equipment — the licensing and the registration methods. Mr. Scheel favors the registration method over the licensing method because renewal of the registration is required annually and an installer who fails to comply with the regulations of the code can be refused a renewal of his registration. This is far easier than the revoking of a license, he pointed out, as this requires court action; also, during the delays normally encountered in such actions, the violator is continuing to make unsafe installations in spite of the fact that inspectors have failed to approve the completed job.

To aid the industry to understand the code and its requirements, a 60 page pocket size condensed version of the code was published and issued free to all persons engaged in the warm air heating and air conditioning industry in the Cleveland area. Mr. Scheel passed out a

number of these pocket editions to the dealers attending the convention and offered to send copies to any others interested in this subject if they would write him in care of the Public Department of Safety, Cleveland.

Metal roof decking materials and their erection were described by Victor G. Pignolet, who classified metal deckings as the closed rib, open rib and long span deck, each type being related to the shape of the material. The application of each type is decided by the architect making the specifications, who bases the specification on the purlin supports used and the type of load to be placed upon decking. The closed rib material has less structural strength than the others under comparable loads. Mr. Pignolet made these points to show that substitution of the different types was not advisable unless all factors were known and considered.

The value of safety first in the shop and on the job was reviewed by Alfred B. Hoftiezer, safety engineer from Laverack & Haines, Inc., managers of the compensation insurance group for the association. One successful stunt that has helped cut accidents in the shop and on the job is an 18 × 36 in. sign posted in a prominent place that tells how many days have expired since the last accident. These signs have been placed in shops located in Elmira, Buffalo, Rochester and Binghamton. Dealers and contractors from these cities verified Mr. Hoftiezer's opinion of the effectiveness of this campaign to reduce accidents. More signs of this type are being distributed to the shops of members located in other cities throughout the state. A safety meeting designed to help build a good safety record is held in each locality before the campaign is started.

The 1957 convention will be held in Niagara Falls. The dates will be published as soon as convention details have been completed and the hotel selected.

(More association news on page 58)

WITH THE ASSOCIATIONS

Continued



WELCOMING COMMITTEE for dealers attending the Chicago Indoor Comfort conference greet W. J. Silberman (right). Members of the committee are (from left) Lou Reining, George Kalvog, Mrs. Guy Voorhees and Guy Voorhees

Hold Chicago Comfort Conference

THE INDOOR COMFORT CONFERENCES got off to a good start when 178 dealers and their employees attended the two-day Chicago meeting at the Graemere Hotel recently. Guy Voorhees, the conference instructor, spent 1½ days outlining the requirements for summer cooling and giving examples of how to solve sample problems. The remaining half day was devoted to a review of good heating practices and an explanation of how to use the National Warm Air Heating and Air Conditioning Association's manuals.

The Chicago Warm Air Conference committee chairman, George Kalvog, credited the successful turnout to the cooperation of the wholesalers covering the Chicago area, who aided the committee in developing interest among dealers and their employees. Mr. Kalvog also said the three mailings made during late December and early January accounted for the large number of out of town dealers who attended. It was his feeling that the advance notices permitted these dealers to schedule their work so that they could be away for the longer period required of those who traveled to Chicago. One dealer came from Iron Mountain, Mich. and there were several others from Michigan cities closer to Chicago. Many came from Indiana, Wisconsin and western Illinois.

Plan Chicago Area Dealer Schools

A COMMITTEE representing 20 wholesaler members of the National Heating and Airconditioning Wholesalers association of the Chicago area has recently completed the groundwork necessary for holding a two-day business management school for heating and air conditioning dealers operating in northern Illinois and northwestern Indiana.

Forty dealers will be invited to participate in the training program to be conducted by members of the

Northwestern University faculty. The school will be held on the Chicago campus of the university.

The school is the first of several planned, according to Charles R. Bennett, chairman of the committee. The school is scheduled to be held on Monday and Tuesday, March 26 and 27.

Area trustee Ned Mott of Rockford, said that certificates will be given dealers completing the program.

Discuss Operation Home Improvement

MEMBERS of the Heating, Air Conditioning and Sheet Metal Association of Columbus, Ohio, as well as other dealer-contractors in the Columbus area, met recently to learn about Operation Home Improvement and the opportunities for increased business it offers the heating and air conditioning dealer. Operation Home Improvement — a national publicity campaign to promote the repair and remodeling of existing homes — is being given publicity in national magazines and newspapers as well as on radio and television programs. How the heating dealer can tie in his promotional activities at the local level with this national program was explained by Don Moore, assistant director of Operation Home Improvement. The meeting was sponsored by local heating wholesalers — Ohio Furnace Co., Inc., Palmer-Donavin Mfg. Co., F. O. Schoedinger, Squire Heating Supply Co. and Vorys, Inc.

Fox Valley Group Elects Officers

AT THE RECENT annual meeting of the Fox Valley Furnace and Sheet Metal Contractors Association (Illinois), John Rubo was elected president to serve for the coming year. Peter Jungles was elected first vice president and Clinton Maves second vice president. Other officers elected were Gerald Conover, secretary; Clayton Evelien, treasurer; and William Klinkey, sergeant-at-arms. The following were elected to serve with the officers as directors for the coming year: C. R. Alexander, Robert Clark, Merritt King, Fred Lamp, Clifford Juby and Joseph Strotz. After the election of officers, two representatives of the gas company addressed the association members. They told about the prospects for releasing more gas for residential heating and outlined some of the plans affecting future expansion of gas facilities for heating equipment.

Michigan Group Talks Gas Heating

SALES AND SERVICE men as well as heating dealers attended the February dinner meeting of the Kalamazoo Sheet Metal, Roofing, Heating & Air Conditioning Contractors' Association. Subject under discussion was the proper combustion and regulation of gas.

(More association news on page 60)



FRONT VIEW Lima Series 45 Wall Diffuser actual air pattern photo

SIDE VIEW Wall Diffuser air pattern photo with arrows showing induced recirculation of room air down along wall and across floor where it mixes with flow of supply air into room.

2 "Best Sellers"

for heating and cooling in New and Old House Installations

With increasing customer emphasis on top value for the money, you'll find it is good business — and good for your business — to give your customers these big plus values of Lima's two "best sellers".

Plus Performance—Rapid diffusion of supply air for constant comfort without drafts, at correct angles to induce aspiration of room air. Air pattern holds constant even at low cfm. Uniform velocity without whistling or rattles regardless of damper setting. Air does not strike room occupants or scrub wall.

Plus Construction—Rugged heavy gauge steel throughout, with mash-welded corners to give one-piece strength. No unsightly mitred corners.

Plus Beauty—Pleasing style lines that harmonize with room surroundings. Luxurious Lima permanent finish resists scratches and mars.

It costs no more to give your customers these big plus values of Lima Diffusers for your OHI modernization jobs and new house installations. So why not check up on these two Lima "Best Sellers" the next time you see your wholesaler.

Lima

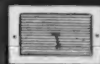
REGISTER COMPANY, LIMA, OHIO

Sold Exclusively Through Heating Wholesalers and Manufacturers.



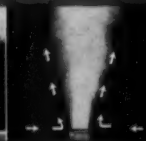
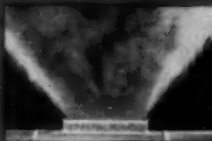
Lima Series 40 Floor Diffuser

Originally developed by Lima engineers and widely copied ever since. Equally efficient for heating and cooling. Notched vanes for quick air pattern change. Set-screw balancing adjustment. Tamper-proof locking device.



Lima Series 45 Wall Diffuser

Ideal for modernization jobs or replacing existing wall or baseboard registers when cooling is being added. Offers all the advantages of perimeter heating and cooling systems where sidewall or baseboard outlets are preferred. Simplified balancing at diffuser face.



SIDE VIEW Floor Diffuser air pattern photo with arrows showing how air is pulled from within room toward lower wall setting so induced aspirating effect for gentle continuous recirculation of room air.

FRONT VIEW Lima Series 45

WITH THE ASSOCIATIONS

(Continued)

Coming Events

- Mar. 15-16—Newark Indoor Comfort Conference. Edw. S. Franklin, Chairman, 156-158 Badger Ave., Newark 8, N. J.
- Mar. 22-23—Michigan Heating and Sheet Metal Association, Inc., annual convention. Hotel Fort Shelby, Detroit. N. J. Biddle, Executive Secretary, 3035 E. Grand Ave., Detroit 2.
- Mar. 23-24—Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania, annual convention. Penn Harris Hotel, Harrisburg. E. W. Liebermann, Secretary, 1411 Merchant Place, Ambridge, Pa.
- Mar. 26-27—Cleveland Indoor Comfort Conference. John Petri, Chairman, 6420 Woodland Ave., Cleveland.
- Mar. 29-30—Buffalo Indoor Comfort Conference. J. A. Collins, Chairman, 367 Northampton St., Buffalo 8, N. Y.
- Apr. 2-3—Albany Indoor Comfort Conference. Earl R. Welker, Chairman, 98 Fuller Rd., (Colonie), Albany 5, N. Y.
- Apr. 5-6—New Haven Indoor Comfort Conference. A. J. Alderman, Chairman, 169 Derby Ave., New Haven 6, Conn.
- Apr. 9-10—Indianapolis Indoor Comfort Conference. Al Nemec, Chairman, 614 E. Ohio St., Indianapolis.
- Apr. 16-17—Sheet Metal Contractors Association of Illinois, Inc., annual convention. Abraham Lincoln Hotel, Springfield, Ill. Jay E. Harms, Secretary, 1619 N. Sheridan Rd., Peoria, Ill.
- Apr. 18-19—Minneapolis Indoor Comfort Conference. George Zingsheim, Chairman, 301 N. 7th St., Minneapolis.
- Apr. 19-21—Gas Appliance Manufacturers' Association, annual meeting. The Greenbrier Hotel, White Sulphur Springs, W. Va. H. Leigh Whitelaw, Managing Director, 60 E. 42nd St., New York 17.
- Apr. 23-24—Denver Indoor Comfort Conference. J. H. Singleton, Chairman, 1830 Market St., Denver 2.
- Apr. 26-27—Salt Lake City Indoor Comfort Conference. Alan E. Huish, Chairman, 960 S. Main St., Salt Lake City 4.
- Apr. 27-28—Roofing and Sheet Metal Contractors' Association of Florida, annual convention. Suwannee Hotel, St. Petersburg, Fla. Don Brown, President, 735 17th St., N., St. Petersburg.
- May 7-9—Air-Conditioning and Refrigeration Institute, annual meeting. The Homestead, Hot Springs, Va. George S. Jones, Jr., Managing Director, 1346 Connecticut Ave., N. W., Washington 6, D.C.
- May 9-12—Sheet Metal Contractors' National Association, Inc., annual convention. Shoreham Hotel, Washington, D.C. J. D. Wilder, Executive Secretary, 170 Division St., Elgin, Ill.
- May 14-15—National Association of Sheet Metal Distributors, spring meeting. Hotel Roosevelt, Pittsburgh. Thomas A. Fernley, Jr., Executive Secretary, 1900 Arch St., Philadelphia 3.
- June 3-6—American Society of Refrigerating Engineers, semi-annual meeting. Sheraton-Gibson Hotel, Cincinnati. R. C. Cross, Executive Secretary, 234 Fifth Ave., New York 1.
- June 11-15—Oil-Heat Institute of America, Inc., exposition and annual convention. The Coliseum, New York, N.Y. R. H. L. Becker, Managing Director, 500 Fifth Ave., New York 36.
- June 12-13—National Warm Air Heating and Air Conditioning Association of Canada, annual convention. King Edward Hotel, Toronto. D. M. W. Wilson, Managing Director, 4195 Dundas St., W., Toronto 18.
- June 18-19—National Heating & Airconditioning Wholesalers, Inc., summer meeting. French Lick-Sheraton Hotel, French Lick Springs, Ind. W. R. Bull, Executive Director, 1200 W. Fifth Ave., Columbus, O.
- June 18-20—American Society of Heating and Air-Conditioning Engineers, semi-annual meeting. Shoreham Hotel, Washington, D.C. A. V. Hutchinson, Executive Secretary, 62 Worth St., New York 13.
- June 21-24—Carolinas Roofing & Sheet Metal Contractors Association, annual convention. Ocean Forest Hotel, Myrtle Beach, S. C. Julian M. McKeithan, Secretary, 1219 Fairway Dr., Wilmington, N. C.



LEADERS RELY ON LAU

25 Years Building Better Blowers

In the heating and air-conditioning fields Leaders Rely on Lau as the major supply source for the best in air-moving equipment. On this, our Silver Anniversary Year, many new developments are in the offing. And, as advancements in design and engineering have been proved by exhaustive tests, Lau will bring them to the industry.



GILT-EDGE SECURITY



THE LAU BLOWER COMPANY

2000 Home Ave. • DAYTON 7, OHIO

Other plants at Kitchener, Ont., Canada, and Azusa, California

Our exclusive LAU-pak Gold Seal Bearings solve many problems. There are NO oil cups, NO oil tubes and NO servicing. As a matter of fact these sealed bearings are lifetime lubricated in the bearing housing of all Lau Series "A" belt drive Blowers. There is no need for access doors, the blower may be positioned at any angle, the operation is smooth and quiet; and friction is largely eliminated. Thus, with LAU-pak Gold Seal Bearings you are assured of lifetime service in normal usage. Lau also makes large capacity oil reservoir bronze bearings with spring pressure. You can depend on LAU quality. Write Lau today, Dept. M.

LB-3, 56



SERIES "A"
BLOWER



ELECTRO-WHEEL
BLOWER



LAU-PAK
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BEARING
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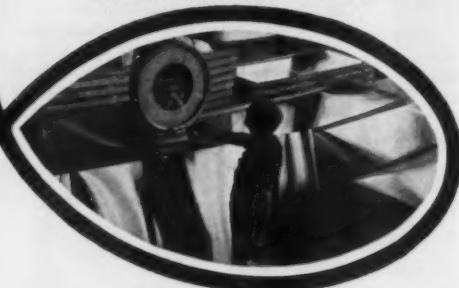
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WORLD'S LARGEST MANUFACTURERS OF AIR-CONDITIONING BLOWERS

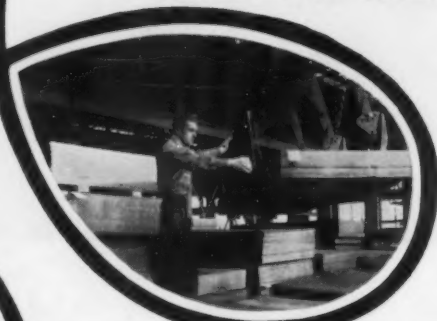
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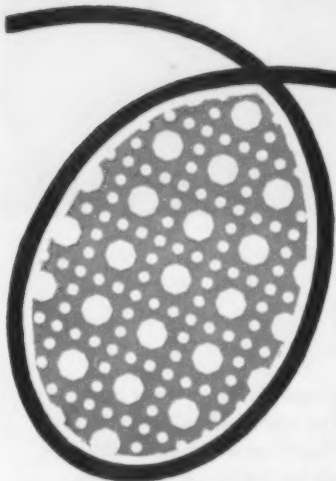
GALVANIZED SHEETS



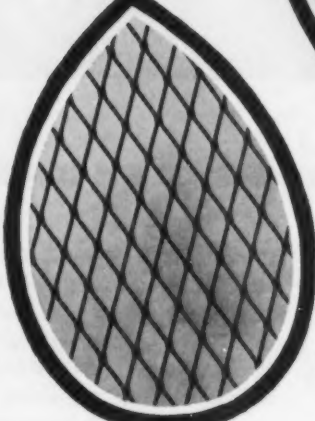
STAINLESS SHEETS



CARBON STEEL SHEETS



PERFORATED SHEETS



EXPANDED METAL

Quick delivery from the nation's largest sheet stocks

Need sheet steel in a hurry? Ryerson sheet stocks, always the nation's largest, have improved, substantially. (Galvanized is in particularly good supply.) So now you can get quick shipment of almost any type, gauge and size in almost any quantity—with just a call to your nearby Ryerson plant.

Do you want your steel prepared for immediate use? Ryerson facilities include the most modern, close-tolerance equipment for shearing to your order, in-

cluding cut-to-length lines that quickly convert coil stock to flat sheets of any measure.

A single order can cover all your needs—for bars, bands, angles, tubing, etc., black and galvanized, and more than 20 different kinds of sheet steel. Next time you need steel quickly, try this dependable service.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE



To Make Selling Easier

SMART PROMOTION and good advertising make selling easier and more profitable. This principle has been proved time and time again. Many dealers in the warm air heating and residential air conditioning field are making good use of their knowledge of this fact.

Many of the manufacturers in our industry make available to dealers sound advice on good selling and promotion. The cost of developing and preparing the various merchandising plans is borne by the manufacturer, who often also helps financially with the cost of sales promotion at the local level.

Surveys among warm air heating-residential air conditioning dealers have shown that the average amount of money spent for advertising and sales promotion is between one and one-half and two percent of the total annual sales volume. Some spend little if any for advertising; others have spent up to eight percent during certain years when some special event has taken place. Among such events are consolidation of two businesses; taking on a new line of heating or cooling equipment; a change in company policy, such as when a firm that has specialized in new house work decides to go after modernization work on a large scale; and others.

Sales promotion is increasing in importance because America's economy is moving at a pace unequalled in the history of any country. The product that has the most appeal to the buyer is the product that draws the buyer's dollar to that particular industry. Thus, the most important function of sales promotion is to reach a prospect and arouse his interest sufficiently to cause him to consider seriously the product being promoted. It is the job of the sales promotion material to tell what the product can do for its owner, why the product is desirable to own, when it is needed most, and who can tell him more about it.

The right promotion techniques prepare the way for the salesman, make more calls possible, bring down the sales cost per sale. Thus, money spent for advertising and sales promotional activities should be properly credited to the asset side of the sales ledger.

Use the merchandising aids available from manufacturers and support them with your own local promotional material. This is the practice followed by some of the largest dealers in our industry. Each year the books of these progressive dealers show they are drawing more premium consumer dollars to their businesses.



Dealer Test Shows

WHAT TO DO — and how to do it — how much to spend — and how to spend it — are important business questions that face every warm air heating-residential air conditioning dealer considering promotion and sales. The "test dealer" project described here, aimed to answer these and other questions, is therefore of great interest to the entire industry. During the first year of the study, using a carefully planned promotion program, Hoosier Heating and Sheet Metal almost doubled its volume, increased net profit 40 percent



RESULTS OF THE "test city project" are checked by John Reock (right) and John Rosenthal, of Mueller Climatrol

How MUCH should a dealer-contractor spend for sales promotion — and how should he spend it — to build up his warm air heating and residential air conditioning volume profitably?

How much can a dealer-contractor expect to expand his business volume by using a well planned and carefully scheduled promotion program?

These are questions every dealer-contractor would like to see answered — as would the manufacturers and wholesalers serving the warm air heating and home air conditioning industry. They have been of particular interest to the American Artisan for many years. We therefore welcomed the opportunity of following closely a current "test city" project which was established in an endeavor to find the answers.

Why a Test Program?

Mueller Climatrol — well-known manufacturers of heating and air conditioning equipment — are sponsoring this test city program because they have long advocated that dealers must do promotion in their own areas to build up their own names locally, and to tie in with the national advertising programs of manufacturers. Too, they are interested in making comparisons of the various advertising media available to a dealer-contractor to see which of them work best. Finally, they want

to be able to "pre-test" sales promotion programs.

In a study or test program of any kind, it is necessary to plan it so the influence of all the many factors involved can be analyzed and observed. This is particularly difficult when the subject is sales promotion, as there are so many different things that can — and do — influence the results one way or another. An important part of the project was therefore the selection of a test city.

Choosing the Test City

Basically, what was wanted as the test city was one not subject to any unusual influences, and independent to the extent that it would not be affected by some dominating nearby metropolitan area. Also, for convenience in handling the details of the study, it was necessary that it be so located that the sponsoring manufacturer's home office men could get to it easily by rail or by air. Also, it had to be within overnight trucking distance from the manufacturer's plant.

The qualifications set up for the test city included:

- 1) Population to be around 100,000 — large enough to provide good test samples but not so large as to complicate or make the test program unwieldy or too expensive.
- 2) City must be outside of the trading area or domination of some large metropolitan area, and to have its own radio and television station and its own newspaper.

Value of Sales Promotion



MARY STEVENSON, secretary of Hoosier Heating and wife of Walt Stevenson, shows a gas fired incinerator to a customer



IN HOOSIER HEATING'S busy shop, duct work and fittings for heating and air conditioning jobs are fabricated. Mr. Stevenson is in the background at the right

3) City to be located between 38 deg and 40 deg latitudes — to provide a climate suitable for studying both home heating and cooling merchandising techniques, without either heating or cooling greatly overshadowing the other.

4) Business activity in the city to be roughly in line with that of the country as a whole — so the results wouldn't apply only to a boom town (or the opposite).

5) City not to be dominated by one or two large manufacturing businesses — so that the city's economic activity would not depend greatly on what one plant did or did not do.

6) City to be fairly clean politically, free of any one strong influence that would affect economic activity.

Selecting the Test Dealer

With the qualifications for a suitable test city formulated, it was necessary to decide on the qualifications of the "test dealer" — who would of course be located in the city meeting those qualifications. The requirements were outlined as follows:

1) Adequately equipped sheet metal shop, staffed by

experienced and competent journeymen, a well-trained service department, and sufficient stock to handle normally expected calls.

2) At least one full-time salesman, other than the dealer himself.

3) Handle a complete line of products.

4) Adequate financing and good banking affiliations.

5) Willing to open his accounts to examination for periodic checkups.

6) Agreeable to following through on the test project for at least one complete fiscal year.

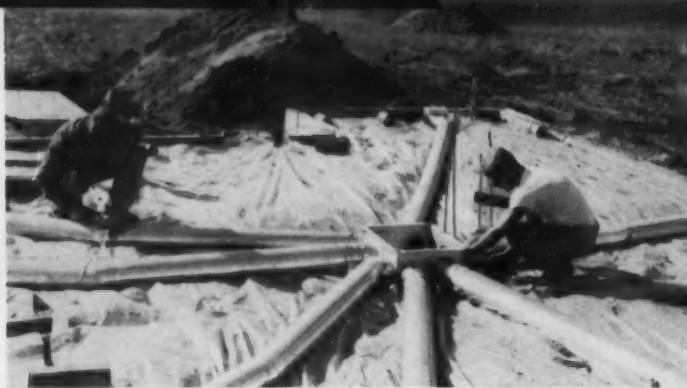
After considerable investigation, thought and study in matching the test city and test dealer qualifications, the project was undertaken with Walt Stevenson, of Hoosier Heating and Sheet Metal, Inc., Terre Haute, Ind., as the dealer. The program began January 1, 1955.

Business Volume Nearly Doubled

The first year's results of the test city program indicate rather definitely that a planned promotion program for a warm air heating-residential air conditioning dealer definitely pays off. Hoosier Heating almost doubled



ADEQUATE STOCK of repair parts and quick response to service calls are most important, in Mr. Stevenson's opinion, to the success of his operation



QUALITY INSTALLATIONS back up the sales promotion program. Here, the duct work for a slab floor perimeter heating job is being readied for the concrete contractor

its business volume — from \$111,963 in 1954 to \$204,577 in 1955 — and increased its net profit in 1955 over the preceding year by 40 percent. This \$90,000 increase in sales was obtained with an increased expenditure of \$3535 for advertising. In 1954, the advertising expense amounted to 1.3 percent of total sales; last year, for the increased volume, the money spent for advertising amounted to 2.5 percent of the sales total.

Here are the figures in tabular form:

	1954	1955
Cash receipts	\$104,491.....	\$186,319
Charge sales	7,472.....	12,757
Total sales	111,963.....	204,577
Advertising costs	1,455.....	4,990
Percent advertising costs		
to sales	1.3.....	2.5
Net profit	Up 40% in 1955	

(Note: 1955 total sales greater than total of cash receipts and charge sales because of jobs under way but not completed, and therefore not yet billable under new bookkeeping system.)

There were, of course, other expenses than those for advertising which were necessary to handle the increased business volume last year.

For example, at the start of the test project, Hoosier Heating and Sheet Metal employed 10 full-time shop, service and installation men, operated a 1½ ton stake truck and a 1 ton pickup truck, with two passenger cars available for sales and service work. During the peak installation period in the fall of '55, however, the organization had grown to 19 men, and five trucks were used daily in addition to the two cars.

Promotion Responsible for Increase

It would of course be possible for any dealer to see his sales volume increase 80 percent in one year compared with the previous year, if the total business in his area increased by that amount and he continued to obtain the same proportion of the total business. This was not the case here, however.

While specific figures — such as building permits for the city and its suburbs, or some other such index — aren't available, careful checks of a number of sources would indicate that Hoosier Heating and Sheet Metal's "natural" growth would have been at the most perhaps

10 percent in 1955 over 1954. Mr. Stevenson is thus of the opinion that the 80 percent increase experienced "must be attributed to the promotion program and would not have been enjoyed without it."

Certainly, Terre Haute could not be called a "boom town" in 1955 compared with 1954, as was obvious in checking with the local chamber of commerce, the local newspaper, such permit records as are available, etc. Also, the city was classified during 1955 by the Bureau of Economic Security of the U. S. Department of Labor as an area where "job seekers were considerably in excess of job openings." While total warm air heating and residential air conditioning activity in the Terre Haute area was apparently up in 1955 over 1954, it's impossible to arrive at an exact figure. But it is believed — as mentioned — that the increase could only have been in the neighborhood of 10 percent — certainly nothing anywhere near 80 percent, which was Hoosier Heating and Sheet Metal's gain.

It must therefore be concluded that the gain was due to the aggressive advertising and sales promotion program inaugurated by Hoosier Heating and Sheet Metal and carried on during 1955.

Here's the Program

One of the first steps in the promotion program was to find out how best to reach the prospects for Hoosier Heating and Sheet Metal's services. From chamber of commerce and phone book sources, a mailing list of business executives and professional people (doctors, lawyers, accountants, etc.) was compiled, as it was felt they would represent particularly good prospects for the purchase of home heating and air conditioning equipment. A questionnaire was then sent them to determine what newspapers they read . . . and when they read them, what radio stations they listen to . . . and when, what TV stations they watch . . . and at what times, how they get to work . . . to see if car card advertising in buses would be effective, etc.

After learning in this way something about the reading and other habits of potential customers, it was decided that the promotion program would include:

1) A local newspaper campaign with a two column ad at least once a week for 40 weeks during the year, in

both morning and evening papers. In addition, there would be larger special ads to appear every three months and on such specific occasions as spring clean-up time, at the start of the summer cooling season, at the start of the heating season, and to hook up with any local civic activities.

- 2) Five minute daily radio newscasts at 7:40 a.m.
- 3) Daily 10:10 p.m. television weather forecast.
- 4) Participation in the county fair.
- 5) A color film trailer at the drive-in theatre seven nights a week, twice a night for 32 weeks.
- 6) Direct mail to builders and architects, and to the home owner mailing list compiled for the original questionnaire.

Products promoted in the advertising messages were furnaces, heating and cooling systems, incinerators, conversion burners, humidifiers, filters and other accessories. The particular points played up in the promotional efforts were Hoosier's 24 hour a day service policy, expert engineering, installation skill, factory-trained mechanics, a three year oil to gas conversion plan, and FHA or independent financing.

Budgeting the Promotion

It would be especially valuable if the specific sales resulting from each of the various methods of advertising used by Hoosier last year could be traced. It is hoped that, as the test project continues, it will be possible to develop information of this kind.

However, from examination of the contracts fulfilled during the year, Mr. Stevenson has concluded that — in his particular case, at least — the drive-in theatre and the television weather forecasts were most effective in producing results.

The total cost of the drive-in advertising was \$265 and for the television program, \$650. This sum, \$915, was 29 percent of the \$3178 budgeted for advertising during 1955.

An additional \$656 was not budgeted in order to provide working capital for special sales promotional activities. One such program not included in the budget was a customer contest in which the winner was awarded an incinerator as his prize.

The total of \$3834 allocated for sales promotion was 2 percent of the annual sales volume of \$191,710 which was anticipated for 1955. The actual amount spent for sales promotion exceeded the estimate as it was found desirable to participate more extensively in some of the promotional activities to try to determine their value as sales promotional media. Some of the media used in 1955 will not receive the same allocations in the 1956 budget.

The budget scheduled sales promotion expenditures to be used during the year as follows:

First quarter	11.6 percent
Second quarter	37.4 percent
Third quarter	34 percent
Fourth quarter	17 percent

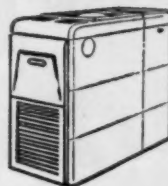
NOW!
is the time

Let us make a heating survey of your home for that needed



Walt Stevenson

MUELLER CLIMATROL



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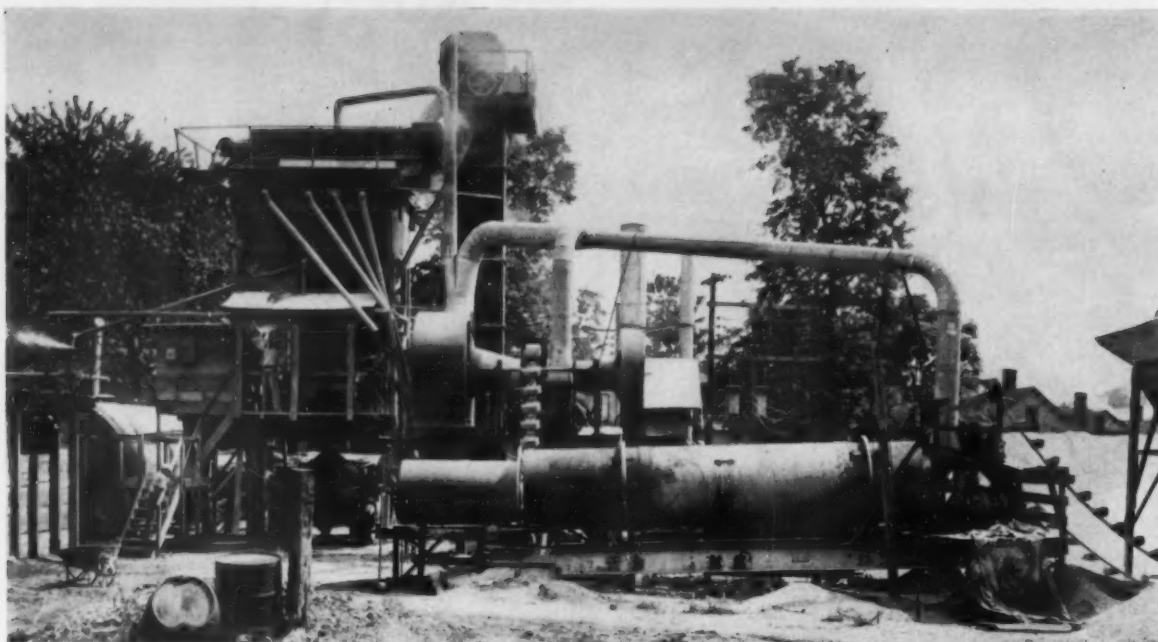
TWO COLUMN newspaper ads were run at least once a week for 40 weeks, supplemented by larger ads for special occasions

Follow Through on Jobs

No sales promotion program of any kind can be very effective without a trained staff to follow through on each of the details that goes into a complete installation. Hoosier Heating and Sheet Metal, Inc. backs up its sales with every tool at its disposal. Each proposal includes a detailed layout plan for the air distribution system, a complete load estimate, specification sheet on the equipment recommended, a contract form showing every piece of equipment that will be installed, the one year free service plan and the proposed payment plan.

The information given in the proposal is supported by the company's reputation for doing a first class job. Customers have been conditioned to rely upon Hoosier Heating's around-the-clock service policy. Keeping customer confidence is the keystone to building a reputation, and is Mr. Stevenson's philosophy.

Complete records are kept on every service call: both complete and incomplete calls are filed in their special places so the installation of any new parts or any other promises can be fulfilled as soon as convenient for the customer. Sales leads and follow-up calls are kept in a "Do-it-today" box, where each salesman makes a daily check.



How to Evaluate Collectors for Dust Control Jobs

Here's a check list for contractors to use as a guide in choosing the proper size and type of control equipment to do the best possible job at the lowest cost

By John M. Kane
Manager, Dust Control Products
American Air Filter Co., Inc.

LAST MONTH we appraised various situations that called for specific dust collecting equipment, considering the application factors involved. In this discussion we will inspect the control devices themselves, comparing the characteristics of the equipment to the job to be done.

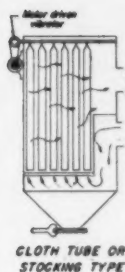
Evaluation of dust collectors should include consideration of the factors discussed below.

Collection efficiency required: Minimum acceptable performance will depend on plant location, dust concentration, particle size range, local meteorological problems, community or state regulations, the point of cleaned gas discharge. The larger the exhaust volume, the higher the efficiency usually required with the accompanying increased mass rate of emissions. Even in isolated areas, the parking lot for employees' automobiles can be a source of grievance and complaint from settled material on car finishes.

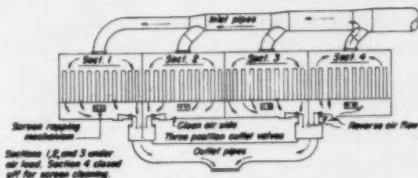
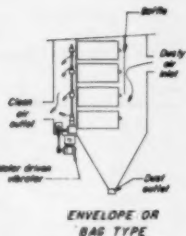
For most applications, collection efficiency stated as a percentage removal by weight of the entering contaminant will be a sufficient gauge of performance. Where particle size cannot be defined or measured, collection efficiency can be expressed by degree of removal in certain size fractions usually plus 325 mesh, 20 to 44 microns, 10 to 20 microns, 5 to 10 microns; sometimes 1 to 5 microns and less than 1 micron. (Checking of fractional size guarantees involves tedious, expensive analysis of samples and answers will vary with the technique used.) Where cleaned air is recirculated to the occupied space, air cleanliness expressed in number of particles by count per cu ft of air seems to be the most significant. Where air pollution control (as opposed to "public nuisance" elimination from settled coarser materials) requires a high degree of sub-micron removal, visible standards (usually expressed vaguely in degrees of capacity) may be necessary although there is no known correlation between visible appearance and a concrete measurement in terms of weight.

An excellent guide is the selection of equipment with the highest order of contaminant removal available at the most reasonable installed, operating, and maintenance costs. (See pages 69, 70 and 71.)

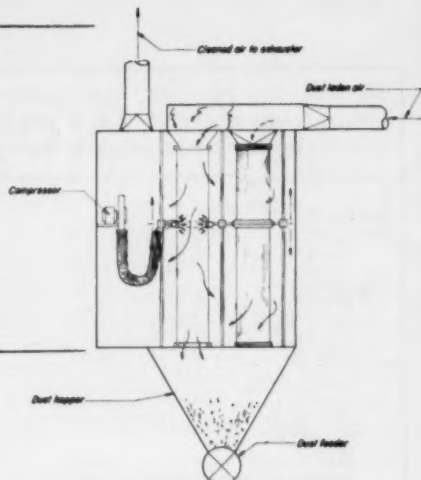
CLOTH TYPE ARRESTERS



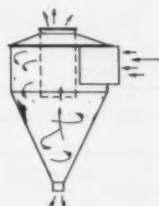
INTERMITTENT DUTY



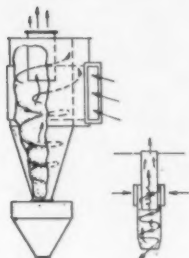
CONTINUOUS DUTY



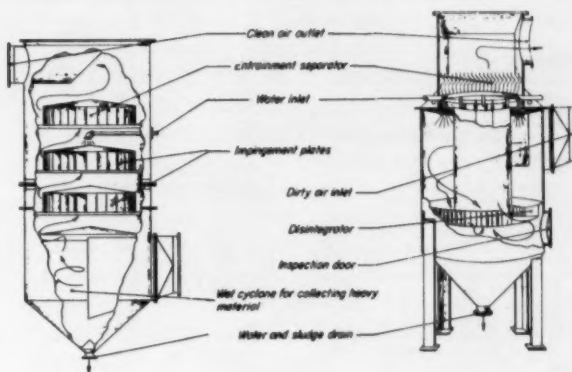
LOW PRESSURE CYCLONE



DRY TYPE DYNAMIC PRECIPITATOR

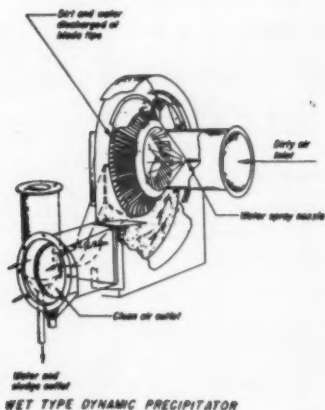


HIGH EFFICIENCY CENTRIFUGALS

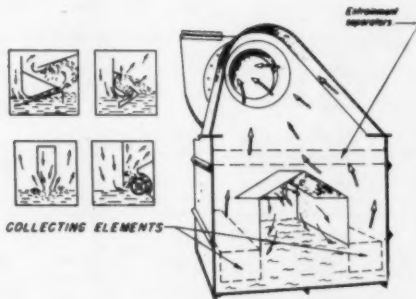


WET CENTRIFUGAL COLLECTORS

DRY TYPE CENTRIFUGAL COLLECTORS



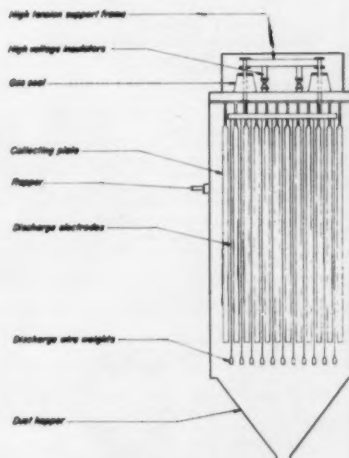
WET TYPE DYNAMIC PRECIPITATOR



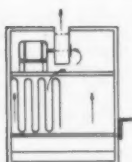
TYPICAL WET ORIFICE TYPE COLLECTOR

COLLECTING ELEMENTS

WET TYPE DUST COLLECTORS



ELECTROSTATIC PRECIPITATOR



FABRIC TYPE



AIR FILTER TYPES



LOUVRE TYPE



UNIT COLLECTORS

Table 1—FAMILIARITY WITH DUST COLLECTOR characteristics is basis for wise choice of equipment based on understanding of the dust or gas properties and decision of amount of cleaning required

Effect of Dust Variations	Cyclones	High Efficiency Centrifugals	Wet Collectors	Fabric Collectors	High Voltage Electro-Static
Efficiency, particles less than 1 micron	Poor	Poor	Poor to fair	Good	Good
Efficiency, particles of 1 - 10 microns	Poor	Poor to fair	Fair to good	Good	Good
Efficiency, particles of 10 - 20 microns	Poor	Good	Good	Good	Good
Efficiency, particles of over 20 microns	Fair to good	Good	Good	Good	Good
Abrasion Resistance	Fair	Fair	Good	Good	Fair
Handles Sticky, Adhesive Materials	Fair	Poor	Poor to good	Poor	Poor
Bridging Material Gives Troubles	Slight	Yes	No	Yes	Yes
Fire or Explosion Hazard Minimized	Fair	Fair	Good	Poor	Poor
Can Handle Hygroscopic Materials	Yes	Fair	Yes	With care	With care
Large Foreign Materials Cause Plugging	Seldom	Yes	Seldom to yes	Seldom	Yes
The Effect of Gas Stream Variations					
Maximum temperature standard construction	750 F	750 F	No Limit	180-275 F	750 F
Troubles from condensed or entrained mists or vapors	Slight	Considerable	Slight	Considerable	Some
Corrosive gases attack standard construction		Slight	Severe	Slight	Slight
The collector					
Space	Large	Modest	Modest	Modest to large	Large
Pressure drop	1-2 in.	3-5 in.	3-6 in.	2-6 in.	1-2 in.
Reduced volume adversely affects collection efficiency	yes	Yes-with most designs	Depends on design	No	No

Table 2—USUAL AIR CLEANER SELECTIONS for industrial processes are based on installations encountered under many conditions and doing a variety of jobs

Operation	Concentration	Particle Sizes	Collector Types Used in Industry					See Remark No.
			Cyclone	High Efficiency Centrifugal	Wet Collector	Fabric Arrestor	High Voltage Electro-Static	
Ceramics								
a) Raw Product Handling	light	fine	rare	seldom	frequent	frequent	no	1
b) Fetting	light	fine to medium	rare	occasional	frequent	frequent	no	2
c) Refractory Sizing	heavy	coarse	seldom	occasional	frequent	occasional	no	3
d) Glaze & Vitr. Enamel Spray	moderate	medium	no	no	usual	no	no	
Chemicals								
a) Material Handling	light to moderate	fine to medium	occasional	frequent	frequent	frequent	rare	4
b) Crushing, grinding	moderate to heavy	fine to coarse	often	frequent	frequent	frequent	no	5
c) Pneumatic Conveying	very heavy	fine to coarse	usual	occasional	rare	usual	no	6
d) Roasters, Kilns, Coolers	heavy	medium to coarse	occasional	usual	usual	rare	often	7
Coal Mining & Power Plant								
a) Material Handling	moderate	medium	rare	occasional	frequent	frequent	no	8
b) Bunker Ventilation	moderate	fine	occasional	frequent	occasional	frequent	no	9
c) Dedusting, air cleaning	heavy	medium to coarse	frequent	frequent	occasional	often	no	10
d) Drying	moderate	fine	occasional	occasional	frequent	no	no	11
Flyash								
a) Coal Burning-chain grate	light	fine	no	rare	no	no	no	12
b) Coal Burning-stoker fired	moderate	fine to coarse	rare	usual	no	no	rare	13
c) Coal Burning-pulverized fuel	heavy	fine	rare	frequent	no	no	frequent	14
d) Wood Burning	varies	coarse	occasional	occasional	no	no	no	
Foundry								
a) Shakeout	light to moderate	fine	rare	rare	usual	rare	no	15
b) Sand Handling	moderate	fine to medium	rare	rare	usual	rare	no	16
c) Tumbling Mills	heavy	medium to coarse	no	no	frequent	frequent	no	17
d) Abrasive Cleaning	moderate to heavy	fine to medium	occasional	occasional	frequent	frequent	no	18
Grain Elevator, Flour and Feed Mills								
a) Grain Handling	light	medium	usual	occasional	rare	occasional	no	19
b) Grain Dryers	light	coarse	occasional	no	no	no	no	20
c) Flour Dust	moderate	medium	usual	often	occasional	frequent	no	21
d) Feed Mill	moderate	medium	usual	often	occasional	frequent	no	22
Metal Melting								
a) Steel Blast Furnace	heavy	varied	frequent	rare	frequent	no	frequent	23
b) Steel Open Hearth	moderate	fine to coarse	no	no	doubtful	possible	probable	24
c) Steel Electric Furnace	light	fine	no	no	considerable	occasional	rare	25
d) Ferrous Cupola	moderate	varied	rare	rare	frequent	occasional	occasional	26
e) Non Ferrous Reverberatory	varied	fine	no	no	rare	?	?	27
f) Non Ferrous Admissible	light	fine	no	no	rare	occasional	?	28
Metal Mining & Rock Products								
a) Material Handling	moderate	fine to medium	rare	occasional	usual	considerable	?	29
b) Dryers, Kilns	moderate to heavy	medium to coarse	frequent	frequent	frequent	rare	occasional	30
c) Cement Dryer	moderate	fine to medium	rare	frequent	occasional	no	occasional	31
d) Cement Kiln	heavy	fine to medium	rare	frequent	rare	no	considerable	32
e) Cement Grinding	moderate	fine	rare	rare	no	frequent	rare	33
f) Cement Clinker Cooler	moderate	coarse	occasional	occasional	?	?	?	34
Metal Working								
a) Production Grinding, scratch brushing, abrasive cut-off	light	coarse	frequent	frequent	considerable	considerable	no	35
b) Portable and swing frame	light	medium	rare	frequent	frequent	considerable	no	36
c) Buffing	light	varied	frequent	rare	frequent	rare	no	37
d) Tool Room	light	fine	frequent	frequent	frequent	frequent	no	38
e) Cast Iron Machining	moderate	varied	rare	frequent	considerable	considerable	no	
Pharmaceutical & Food Products								
a) Mixers, grinders, weighing, blending, bagging, packaging	light	medium	rare	frequent	frequent	frequent	?	39
b) Coating pans	varied	fine to medium	rare	rare	frequent	frequent	no	40
Plastics								
a) Raw Material Processing (See Comments Under Chemicals)								41
b) Plastic Finishing	light to moderate	varied	frequent	frequent	frequent	frequent	no	42
Rubber Products								
a) Mixers	moderate	fine	no	no	frequent	usual	no	43
b) Batchout Rolls	light	fine	no	no	usual	frequent	no	44
c) Talc Dusting and Dedusting	moderate	medium	no	no	frequent	usual	no	45
d) Grinding	moderate	coarse	often	often	frequent	often	no	46
Woodworking								
a) Woodworking Machines	moderate	varied	usual	occasional	rare	frequent	no	47
b) Sanding	moderate	fine	frequent	occasional	occasional	frequent	no	48
c) Waste Conveying, Hogs	heavy	varied	usual	rare	occasional	occasional	no	49

REMARKS PERTAIN to last column in Table 2

- 1) Dust released from bin filling, conveying, weighing, mixing, pressing, forming. Refractory products, dry pan and screening operations more severe.
- 2) Operations found in vitreous enameling, wall and floor tile, pottery.
- 3) Grinding wheel or abrasive cut-off operation. Dust abrasive.
- 4) Operations include conveying, elevating, mixing, screening, weighing, packaging. Category covers so many different materials that specific recommendation will vary widely.
- 5) Cyclone and high efficiency centrifugals often act as primary collectors followed by fabric or wet type.
- 6) Usual set up uses cyclone as product collector followed by fabric arrester for high overall collection efficiency.
- 7) Dust concentration determines need for dry centrifugal; plant location and product value the need for final collectors. High temperatures are usual and corrosive gases not unusual.
- 8) Conveying, screening, crushing, unloading.
- 9) Remote from other dust producing points. Separate collector usual.
- 10) Heavy loading suggests final high efficiency collector for all except very remote locations.
- 11) Difficult problem but collectors will be used more frequently with air pollution emphasis.
- 12) Public nuisance from boiler blow down indicates collectors are needed.
- 13) Higher efficiency of electro-static indicated for large installations especially in residential locations. Often used in conjunction with dry centrifugal.
- 14) Public nuisance from settled wood char indicates collectors are needed.
- 15) Hot gases and steam usually involved.
- 16) Steam from hot sand, adhesive clay bond involved.
- 17) Concentration very heavy at start of cycle.
- 18) Heaviest load from airless blasting due to higher cleaning speed. Abrasive shattering greater with sand than with grit or shot. Amounts removed greater with sand castings, less with forging scale removal, least when welding scale is removed.
- 19) Operations such as car unloading, conveyors, weighing, storing.
- 20) Collection equipment expensive but public nuisance complaints becoming more frequent.
- 21) In addition to grain handling, cleaning, rolls, sifters, purifiers, conveyors, storage, packaging operations are involved.
- 22) In addition to grain handling, bins, hammer mills, mixers, feeders, conveyors, bagging operations need control.
- 23) Primary dry trap and wet scrubbing usual. Electro-static is added where maximum cleaning required.
- 24) Cleaning equipment seldom installed in past. Air pollution emphasis indicates collector use more frequently in future.
- 25) Where visible plume objectionable from air pollution standards, use of fabric arresters with greater frequency seems probable.
- 26) Most cupolas still have no collectors but air pollution and public nuisance emphasis is creating greater interest in control equipment.
- 27) Zinc oxide loading heavy during zinc additions. Stack temperatures high.
- 28) Zinc oxide plume can be troublesome in certain plant locations.
- 29) Crushing, screening, conveying, storage involved. Wet ore often introduces water vapor in exhaust air stream.
- 30) Dry centrifugals used as primary collectors often followed by final cleaner.
- 31) Collection equipment installed primarily to prevent public nuisance.
- 32) Collectors usually permit salvage of material and also reduce nuisance from settled dust in plant area.
- 33) Salvage value of collected material high. Some equipment used on raw grinding before calcining.
- 34) Coarse abrasive particles readily removed in primary collector types.
- 35) Roof discoloration, deposition on autos can occur with cyclones and less frequently with dry centrifugal. Heavy duty air filters sometimes used as final cleaners in such instances.
- 36) Lint particles and sticky buffing compounds can cause trouble in high efficiency centrifugals and fabric arresters. Fire hazard is also often present.
- 37) Unit collectors extensively used, especially for isolated machine tools.
- 38) Dust ranges from chips to fine floats including graphic carbon.
- 39) Materials involved vary widely. Collector selection may depend on salvage value, toxicity, sanitation yardsticks.
- 40) Controlled temperature and humidity of supply air to coating pans makes recirculation from coating pans desirable.
- 41) Manufacturers of plastic compounds involve operations allied to many in chemical field and vary with the basic process employed.
- 42) Operations are similar to woodworking and collector selection involves similar considerations.
- 43) Concentration is heavy during feed operation. Carbon black and other fine additions make collection and dust free disposal difficult.
- 44) Often no collection equipment is used where dispersion from exhaust stack is good and stack location favorable.
- 45) Salvage of collected material often dictates type of high efficiency collector employed.
- 46) Fire hazard from some operations must be considered.
- 47) Bulky material. Storage for collected material is considerable, bridging from splinters and chips can be a problem.
- 48) Production sanding produces heavy concentration of particles too fine to be effectively caught by cyclones or dry centrifugals.
- 49) Primary collector invariably indicated with concentration and particle size range involved. Wet or fabric collectors when used are employed as final collectors.

Types available: A review of the problem against the dust and gas stream characteristics and a decision on degree of cleaning required will eliminate certain types of equipment from consideration and permit more careful evaluation of the remaining possibilities. Table 1 may be of assistance at this phase of a collector selection procedure. It shows usual relationships between the basic groups of collector designs.

Indoor or outdoor collector location: Space required and space available will determine collector location. Outdoor locations suffer greatly from neglect, and may require protection against freezing or condensation. During cold or rainy weather and during night operation, there are few workmen who will follow prescribed schedules of inspection, servicing or preventive maintenance where the collector is in an exposed outdoor location.

Installation work required: Amount and cost of installation work is an extreme variable with different designs. Such costs can outweigh and make unattractive a product whose f.o.b. factory price might be substantially below that of other designs.

Provisions for material salvage or disposal: Decisions on disposal of collected material must be a part of initial discussions, because collector location, use of wet or dry devices, storage capacities and selection of material handling equipment will be important factors in determining the type and arrangement of collector best suited for a particular problem.

Provisions for maintenance: Any dust collector will require some attention. Generally, the higher the order of cleaning, the more routine inspection and servicing is required. Be certain that access platforms and permanent ladders are provided to encourage the attention needed and provide maximum safety for personnel.

Study—Then Bid

It is good practice to study collector installation, operation, and maintenance instructions before bidding rather than after the collector has been sold.

Need for makeup air supply: If the total volume exhausted from the room or building exceeds two air changes per hour, serious consideration should be given to the makeup air supply. Heating costs will be less, cold drafts will be reduced, and exhaust systems will function as planned. Well located makeup air discharges can increase exhaust system effectiveness.

Installation, operating and maintenance costs: No comparative evaluation of collectors is complete without an appraisal of these items. Collector purchase price is often a small portion of total cost. When submitting bids for a collector installation, erection, supervision, foundations, wiring, plumbing, disposal equipment and accessory equipment are not usually included with the proposal.

Table 2 shows types of dust collectors encountered for a wide range of industrial processes. While many of the ratings are purely arbitrary, they may serve as a check against conclusions reached by analysis of the factors outlined in this discussion.



This is another in a regularly-scheduled group of articles appearing in American Artisan under the general heading " 'TRAINING PROGRAM' ... IN PRINT." These articles are especially prepared to help dealers in developing know-how in all phases of their organizations. Previous articles have dealt with electrical problems as they affect the dealer's air conditioning installations, with humidity control using a heat pump, and with various management techniques developed to attain the best possible operating conditions. This month we turn to two recommended methods of air distribution in modern rambling and split level homes.

'Naturals' for heating larger homes:

Zone and Bypass Control Systems

The dealer's choice of variable or constant volume air distribution system will depend on the situation and on his personal preference. Here's a rundown on each, as alternative suggestions for meeting today's complex comfort demands

THERE'S AN OLD ADAGE that goes "Happiness is where you find it," but this saying cannot usually be adapted to human comfort. Comfort is made, not found, though there are new ways continually being found

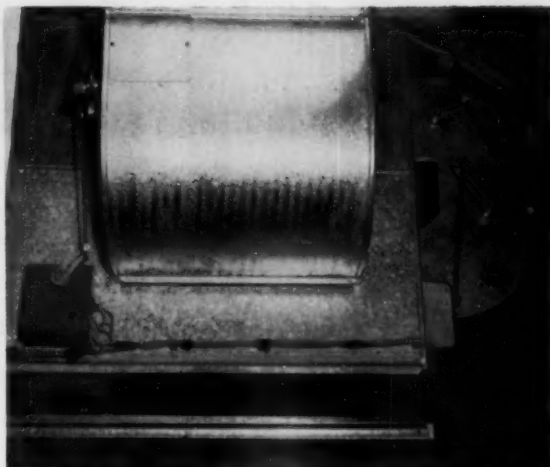
to assure comfort for more people in more places. Two methods being used more today than in the past to provide comfort during the periods when heat is required are the zone control system and the bypass

system for tempering the air of forced air heating systems.

These methods — in principle — have been used a long time on large installations. The increased popularity of the ranch style house that



IN THIS ZONE system, dual duct distribution is used; note the split duct at upper left



TWO VIEWS of damper linkage show proper way to line up linkage with dampers and modulating motor

spreads over considerable area and, in some cases, seems to ramble all over a city lot, and of the tri-level house have brought about heating problems never before faced by the heating dealer-contractor regardless of the type of heating he has been trained to sell and install. It has been the warm air heating dealer, armed with the versatility of the air distribution system, who has solved the problem best. The use of either the zone control system or the bypass air modulation principle has permitted the dealer to supply just the right amount of heat, at the right time, to the right place.

How Zone Control Works

The zone control system for a two zone residential application works this way: The duct system is divided in such a manner that usage, exposure and structural characteristics are given their proper evaluations and air distribution provided to balance approximately the heat loss in each zone. For three, four or more zone systems the balancing of the heat load is not nearly as important as in a two zone system because the closing off of one zone does not send most of the air into one other zone. After the zones have been decided a duct damper is installed near the point where the duct system for one of the zones begins. A modulating

damper motor is installed and connected to a duct damper. A thermostat is installed in a suitable location in the zone and electrically connected to the modulating damper motor.

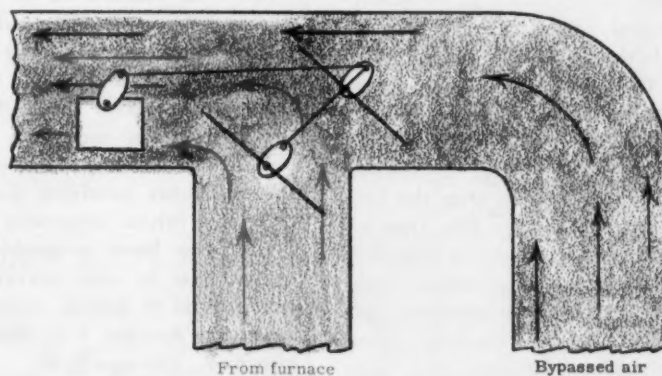
The damper motor is also tied into another electrical circuit that includes an outdoor temperature actuated thermostat, a supply plenum thermostat and the usual fuel burner controls.

Supply Air Ready for Use

When there is a drop in temperature in Zone 1, the thermostat closes the circuit to the damper motor. The motor opens the damper so heated air may flow to the area. The heated air in the supply plenum is main-

tained at a temperature suitable for distribution to the area requiring heat by the relationship existing between outdoor temperature and the supply air temperature through an inside-outside temperature controller which operates the burner. This relationship is automatically maintained by the control circuit and is based on the rate at which heat is being lost from the building. The outdoor thermostat is usually located on the north wall.

When sufficient heat has been added to Zone 1, the thermostat indicates this satisfaction to the damper motor, which reflects the equilibrium between heat loss and heat supply by moving to a position that reduces the volume of air to Zone 1. The same sequence of operation is fol-



DAMPER ARRANGEMENT in bypass system tempers supply air by mixing warm furnace air with unheated air



lowed in Zone 2, which is independent of the conditions that exist in Zone 1.

Dampers Close, Circuits Open

When heat is not required by either zone, both zone dampers are closed with the result that both the burner and blower circuits automatically open stopping both of these components until heat is again required.

This type of air distribution system does not use a constant volume of air to the zone at all times. The air volume varies with the rate of heat loss and is controlled by the position of the zone damper. This might be classified as a variable volume air distribution system.

Bypass System Is Alternative

A second way of controlling this two zone system is by the use of face and bypass dampers actuated by a damper motor which is responsive to control elements similar to those used in the zone control system. However, the bypass air modulation system works on a different principle than the zone control system in that not all of the air passing through the furnace blower passes over the furnace heat exchanger. This type of air distribution system is classified as a constant volume system. Each zone is controlled independently of the other and has its own set of face and bypass dampers.

The use of face and bypass dampers makes it possible to temper the

supply air by mixing heated air from the furnace with unheated air directly from the return system. These face dampers and bypass dampers are usually mounted at right angles to each other and may be either single blade, opposing blade or louver types. Both dampers are interconnected and operate from a single damper motor; as one damper opens the other closes so that the volume of air being passed over the heat exchanger will vary directly with the volume of air being bypassed around the heat exchanger.

Each zone is controlled by its own thermostat and with this type of system it is both possible and practical to maintain each zone at a different temperature.

When both zones are thermostatically satisfied, the bypass dampers will be fully open and the face dampers closed. The control circuit then shuts off the burner and stops the blower motor.

Built-in Bypass Available

Some furnace models now include the built-in bypass system; however, standard furnace models can be adapted to this type of system by tapping the blower discharge plenum and joining the supply trunk at the

furnace discharge with a short section of duct. The duct furnace is also very adaptable to this type of tempered air distribution system.

Air distribution systems that lend themselves to the use of three, four or more zones are usually found in larger houses, either ranch, tri-level or two story models. The air distribution systems for these applications are designed to supply air to only one part of the house — that portion that will form an integral living area. This will be known as the zone and will be independently controlled by its own thermostat and modulating damper assembly.

Four Zones Are Independent

An example of how a ranch style house built over a full basement might be zoned into a four zone system is as follows: *Zone 1*, kitchen and dining room; *Zone 2*, living room and den; *Zone 3*, all three bedrooms; *Zone 4*, basement recreation and game rooms. A fifth zone could be made of the furnace room and the utility room, but the in-transit heat loss normally occurring where ductwork is exposed and from the furnace itself usually is sufficient for this area.

Each of the four zones mentioned would be independently controlled by its own thermostat and motorized damper assembly. The air distribution system could be either the variable volume or the constant volume type. Here, individual preference of the heating dealer will be the deciding factor.

What Are Advantages?

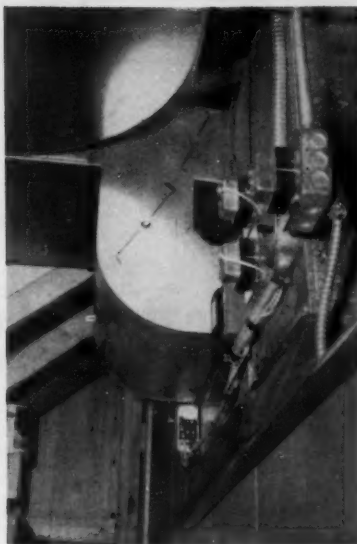
An example of how a saving in fuel can be achieved by the use of zone systems might be a home in which the basement recreation zone is not in use during early morning hours and on days when children are playing outdoors. The thermostat for this area can be turned down manually when the last person leaves that room and moved to the desired temperature setting when the rooms are again in use. The zone system plays an important part when this

WHAT'S YOUR PROBLEM?

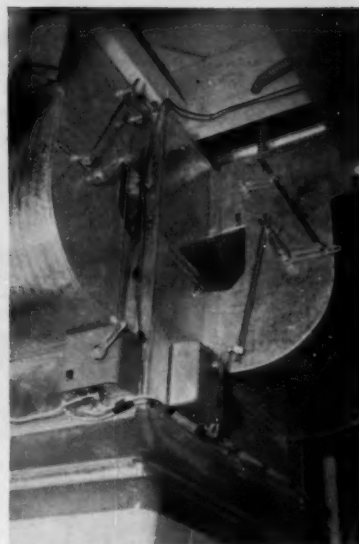
The American Artisan's 'TRAINING PROGRAM' — IN PRINT will explain the whys and wherefores of some of the dealer's problems, tell what to do about them. You will want the members of your organization to study these articles carefully, keep them for future reference . . . If you have a problem you'd like to see covered, write Clyde M. Barnes, Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.



DEALER S. S. SNYDER adjusts the coordinating control for outside-inside thermostats and fuel burner-bypass damper relationship



REAR DAMPER bearing location is important to prevent damper binding; note marks for bearing location



BYPASS DAMPER arrangement is used for a multi-zone system. Here each zone has its own mixture and volume of heated air to match the heat loss of the area it supplies.

type of operation is used by the homeowner because when a zone is put into full use the additional heat required to bring it up to temperature is quickly supplied in the right volume at the right temperature.

Another advantage of the zone control system of air distribution is illustrated in this example: Suppose a ranch style house, using large glass areas on both the north and south sides was so zoned that when the sun shining through the glass on the south side provided sufficient heat for the rooms in that zone, only a small volume of furnace heat would be required; however, the northern exposure would be subject to cold winds wiping the glass areas and extracting heat from the rooms on that side of the house. With a zone control system, the correct quantity of heat would be provided to match the rate of heat loss of each zone.

Other points that can be taken into consideration when selling zone control are: variations in wall construction of houses; wings extending from main portions of the building; unequal floor levels or ceiling heights; and rooms served by unusually long duct runs. Add to these variations other selling points such as pride of ownership, healthful tem-

peratures (no overheating or underheating); economy of operation; and convenience.

How To Install Dampers

The success of any zone system will depend upon the quality of the installation. The most important feature to check carefully — other than usual good practice for furnace and duct erection — is the installation of duct dampers and modulating motor assemblies. The following is recommended for this procedure: Determine the exact location for the front and rear damper bearings. Measure the damper slot, check the location against the opposite bearing location before cutting the duct. Most important is that the bearings be exactly opposite one another or the damper will not turn freely after being installed in the duct. Attach the modulating motor to the duct and be sure that the duct damper shaft extends as far from the duct as the modulating motor shaft. This permits the installation of the linkage between motor shaft and damper shaft to be parallel with the duct. It is most important that this linkage be permitted to operate free of bindage, which will occur when the

connecting rod is diagonally connected between motor and damper shafts.

A dealer who has installed a number of the zone and bypass systems is S. S. Snyder, the Waterbury Co., Minneapolis. Mr. Snyder has this to say:

"The day of the one zone system has passed for most houses, and this means many of the smaller houses, too. We talk zone and bypass control to every prospect and their interest leads me to say that they comprehend the principles involved and accept our recommendations because they are reasonable and make sense to the average layman. Our best salesmen are the customers who were the first to approve our zone plan. Everyone is a zone system booster."

Use It for Cooling, Too

Although this article has been based upon zone and bypass control systems for heating, the same system of air distribution can be readily adapted to summer cooling by installing a combination heating and cooling thermostat for each zone. The type of circuit and controls needed will depend upon the type of heating-cooling unit used.

How to LOCATE SCREEN SELECT Heating, Cooling Salesmen

It's tough these days to find salesmen but you can find good men who will learn the art of *professional salesmanship*

By Robert G. Mihan

Merchandising Consultant

PROBABLY NO single factor will have more importance in the dealer's campaign to build his heating and air conditioning sales volume than the capability of his salesmen. And hiring the right man at the outset will avoid wasting valuable training time and expense on a man who may not measure up.

This article then, will present helpful information for locating and

screening of potential salesmen.

A survey made in 1949 by the National Sales Executives, Inc. points up the importance of giving more attention to the choice of salesmen. This survey, which analyzed many problems involved in the selection and training of salesmen, included the question, "Do you know for sure if your system of picking salesmen is reliable?" Out of 546 replies, 214 said yes, 199 were undecided, and 133 said no.

My work with successful sales ex-

ecutives corroborates these figures and I am convinced that a good system for scientifically selecting prospective salesmen is vitally important. Here is a suggested plan:

Set Up Training Program

1) Get ready to train, then select the best prospective salesmen you can find. There are two things a sales manager or owner of a retail heating or air conditioning business must accomplish in order to build a successful selling organization:

a) Whether you are hiring one salesman or more, get all the selling training tools ready first, then set up a planned sales program designed to prepare the right man properly for his sales job. Be sure you select a man who has the capacity to learn.

b) Don't think of adding a man to sell for you until you are ready, willing and able either to train him yourself or to provide another member of your staff to do it. Be sure the candidate is sold on you personally, on your company and on his opportunities for profit as a salesman.

2) When you're ready to hire salesmen, keep in mind these basic suggestions:

How To Locate Salesmen

Inside your organization or through personal contacts

1. Unsolicited applicants for jobs with your company
2. Your part time salesmen
3. Recommendations by your salesmen and others
4. Present employees in engineering, service or other departments
5. Women engaged in club activities or career women with useful contacts

Outside sources available by request or investigation

1. Newspaper display or classified advertising
2. Recommendations of wholesalers and their salesmen
3. Recommendations from other business men
4. Employment agencies
5. Colleges and business schools

HEATING AND AIR CONDITIONING SALESMAN'S APPLICATION

Name of company _____ Date _____ Telephone No. _____
 Name in full (please print) _____ Own _____ Rent _____
 Present Address _____ No. of dependents _____
 How long have you lived at above address? _____
 Give previous addresses for past 7 years _____
 Age _____ Date of birth _____ month _____ day _____ year _____ Social Security No. _____
 Height _____ Birthplace _____ city _____ state _____
 Weight _____ Are you in good health? Yes _____ No _____ If not explain _____
 Married _____ Single _____ Divorced _____ Separated _____
 Education (Years attended) _____ Grade School _____ High School _____ College _____
 Special sales courses _____
 What part of your education did you pay for? _____ Year _____
 Do you own a car? Make _____ Year _____ Willing _____ Unwilling _____
 What is your feeling about making evening calls? Willing _____ Unwilling _____
 How much life insurance do you carry? \$ _____ Amount of debts (all kinds) \$ _____
 List last three employers, most recent first:
 Month and Year _____ Employer's Name and Address _____ Your Position _____ Salary and Why did you
 From _____ To _____ Commission _____ leave?
 19__ 19__
 19__ 19__
 19__ 19__
 References: (Not former employers or relatives)
 Use back of this sheet for additional experience.
 Signature _____

APPLICATION FORM for heating-air conditioning sales interviews supplies background material and provides the factual information needed to supplement interview impressions

INTERVIEW SHEET

Name of applicant _____ Date _____
 Home address _____ During the interview did he look
 1. Personal appearance _____ well groomed — wear a business suit, shirt and tie? Yes _____ No _____
 2. Did his handshake and the tone of his voice impress me favorably? Yes _____ No _____
 3. Does his conversation instill confidence and does he sound sincere? Yes _____ No _____
 4. Is his family and social background favorable? Yes _____ Not sure _____ No _____
 5. Has he been successful in his former employment? Yes _____ Not sure _____ No _____
 6. Do I believe he has a friendly manner but not too friendly to be unbusinesslike? Yes _____ Not sure _____ No _____
 7. Did he show an interest in my company's products? Yes _____ Not sure _____ No _____
 8. Does he want to work for us and will he be loyal? Yes _____ Not sure _____ No _____
 9. Will he study the approaches to professional selling? Yes _____ Not sure _____ No _____
 10. If he were trying to sell me a product would I buy it? Yes _____ Not sure _____ No _____
 RESULTS OF SCREENING INTERVIEW
 Better than Average _____ Average _____ Fair _____
 Remarks: _____
 Name of Interviewer: _____

IMPRESSIONS FROM INTERVIEW with salesman prospect can be tabulated and analyzed on a sheet such as this one, designed to help paint a clear picture of the candidate with regard to your needs

a) Use all the methods outlined in this article to attract sales candidates.

b) Qualify applicants briefly by a quick appraisal of whether they might be the right men for the jobs.

c) If in the first five minutes a candidate has impressed you favorably, give him in return a five minute outline of the details of your business and his opportunities with your company.

d) Have him complete a special sales application form (see illustration) which will provide an accurate outline of his education, sales experience and personal background.

e) Make a study of his application form, his background, his standing in the community and other points.

f) If you decide to hire him, plan his on-the-job training pro-

gram to fit the individual into your organization.

g) Last, but probably most important, measure his progress and provide more and more on-the-job training until you have produced a top volume professional salesman. Go out with him and show him how to sell.

Seek Trainees Or 'Experts'?

Employers often complain that their newspaper ads for experienced salesmen fail to produce the desired results. On the other hand, I have heard many sales managers and business owners say their ads for prospective salesmen who would like to learn to sell heating and air conditioning equipment have brought highly satisfactory returns.

This latter group of employers, it seems to me, is on the right track. Their entire program of advertising,

screening, selecting and hiring of salesmen is geared to a viewpoint of training. And some sort of training program, even for experienced sales personnel — in the basic policies of a particular company — is a must for any dealer. I encounter many examples, in my contacts, of successful people whose sales volumes have been boosted directly by sales development programs designed to train men to sell their products using the techniques they have found to bring results under circumstances with which they are thoroughly familiar.

Look Around You

Before you replace one of your present salesmen, make sure he can't be improved by further training. Be sure he receives the same opportunity to learn that you would give a new salesman. My investigations have often resulted in recommendation for

Clinic for Advanced Salesmanship



further training of salesmen whose production has been mediocre. Additional training might produce a new outlook that could increase his sales volume. However, the decision to further train must be based on confidence in his capacity to respond favorably.

Travel With Him

My investigations of on-the-job activities of dealer, manufacturer and distributor salesmen have often uncovered weaknesses in their field selling techniques. Time spent traveling with these men often reveals these weak spots in their presentations; and further training often places an unproductive man on the road to successful sales. The point is that you may save money and time by salvaging a salesman who can respond to additional development.

A lot depends on the setup of your particular business but many salesmen without the technical background in heating can often do a fine sales job when supported by your own or your engineers' assistance in handling the technical end of the job. In other words, even if your salesman cannot learn all the technical details required to button up the jobs, he can still be valuable to you in a sales capacity. Amazing results have been obtained from men who are very popular or have enough personal contacts to locate sales prospects. More amazing are the results obtained by men who haven't the friends and personal contacts but possess the ability to canvass for business.

Part time salesmen often prove to

be an asset and I recommend that they be paid the same commission as full time salesmen if they can close their own sales. If they have trouble closing, they can be set up in the "bird dog" category with their deals closed by full time salesmen. A full time man should have no objection to giving up say 2½ percent of his regular commission to obtain a lead he couldn't have obtained if it hadn't come via the "bird dog" route. Also, part time and bird dog salesmen very often are able to carve their own paths to full time selling. Many times a part time or temporary man cultivates an interest in selling as a career as a result of his experiences or his financial gain; through his part time sales employment this man might find out he has the ability and desire to sell.

College students are likely prospects for part time work; many of these young people will be glad to canvass house to house for leads and spend full time canvassing for heating and cooling business during the summer. For example, several years ago a young man sold part time for me while he attended engineering school, stayed on as a full time salesman when he graduated, and today after almost 10 years of selling experience he enjoys a responsible sales position with a large manufacturing concern.

Explore Inside Contacts

Men employed in engineering and service departments are not usually adapted to or interested in trying to sell, but when they do they can become valuable salesmen because of their intimate product and engineering knowledge.

A potential salesman recommended by one of your own salesmen is a good prospect because your man already knows the candidate and has interested him in your company and its products.

Saleswomen have been used very productively in the real estate field and heating-air conditioning dealers might consider that active club women who could turn up many valuable leads might like to earn a

commission. Many women are also anxious to obtain part or full time sales positions to add to their family incomes. And who is better able to put across the family comfort story of year 'round air conditioning?

Develop Outside Sources

There are many excellent outside sources for locating sales recruits. Let's look them over.

Newspaper display and classified advertising are the most productive methods of locating salesmen; however, I can caution from long experience that wording of the ad is of utmost importance. Layout of the ad also is important, and small supplementary ads work well after a larger ad has appeared once or twice. Classified ads should be one column wide and I have found that 3 in. is deep enough. Display ads in the financial section will usually be effective in a two column by 2 in. size.

Wholesalers and their salesmen are familiar with the territory surrounding your business and often know of salesmen who are seeking a change in employment. Your wholesaler salesman is a friend who knows you and your business well. He will be glad to help you too, because he knows that a new salesman will increase his business as well as yours.

Business men in non-competitive activities, lodge or club acquaintances and other personal contacts are often able to provide leads for prospective salesmen.

Employment agencies are a possibility but I would never rely on this source alone because they lack the understanding of the kind of person needed to fill positions as heating and air conditioning salesmen and often are not inclined to do a thorough job of screening an applicant for your needs.

Look for full time sales recruits in graduating classes of colleges and business schools which specialize in business administration and salesmanship. Many of our larger companies, for example, invite these students to plant tours and lectures given by members of their sales ex-

"Your side of the interview should stress selling as a professional career"

ecutive staffs. You will find that talks with members of a graduating class might turn up a number of young men interested in selling as a career.

Interview Climaxes Search

Once a prospect has been located, the all-important interview is set up. Here impressions are formed which will eventually lead to a decision by both parties, and a properly conducted interview is extremely important in making sure the impressions are accurate. Following a few suggestions outlined here will help the dealer get the most from the interview and from the prospect's application.

One point to be emphasized at the beginning is the prospect's appearance. You will want a well dressed man to represent you. Sales training authorities have long agreed that your salesman is a reflective mirror of your business.

While the prospective salesman completes a formal detailed application form, you will find it extremely helpful to analyze your impressions from your verbal interview with the man. Many employers have a screening form on which is noted the results and impressions of their preliminary interview with the applicant.

Use Interview Sheet

The interview sheet illustrated is self-explanatory but it might be advisable to amplify some of its points. The interviewer might think of himself as a customer who might be buying a product from the applicant. If you believe you could give this prospective salesman an order and have full confidence in his ability to follow through to your satisfaction, the candidate is probably the type of man you want to hire.

A prospective salesman should

have a good imagination to the extent that he can size up a prospect without allowing his imagination to run out of bounds.

Try to determine if the candidate is the type of man who will accept constructive criticism which will improve his selling techniques. It has been found that men with little or no experience may become successful salesmen if success is indicated in their former non-selling employment.

Application Completes Picture

By now, the prospect has completed filling out his formal application. This form presents valuable information on his personal, educational and business experience. There are numerous acceptable forms available for those who desire greater detail in the preparation of the sales employment application, but most dealers will find the abbreviated form (see illustration) contains all the essential information they need. Dealers might mimeograph this form; with all the necessary information on one page, it will serve as a quick reference as to the applicant's qualifications.

Your conversations with the applicant will provide supplementary information about his family, his hobbies and his personal interests.

Phone calls to the applicant's former employers and references will top off your screening of his qualifications and help you establish his reliability and fitness as a candidate for a sales job with your company.

Stress Professional Selling

When you find a good potential salesman, make sure he has the fortitude to stick it out and not get discouraged if things don't pan out quickly. Your side of the interview should present selling as a professional career, with financial rewards

equal to those in any other field, but it should also stress that the financial rewards for his professional ability involve plenty of hard work.

Does Candidate Check Out?

Let's put it this way — make a final analysis for your own benefit by using this check list:

1) Did he object to working nights?

2) Would he go after business on his own or work only the leads you supply? Would he do some house-to-house, cold turkey canvassing in addition to making other contacts that produce prospects?

3) Would he work to make more money than it will require to support his family comfortably? Or strive to make more than the quota set by his sales manager?

4) Will he study his product and competitive makes extensively so he will be able to sell against competition?

5) Will he learn how to sell consumer benefits and not just mere "nuts, bolts, and thicknesses of steel"?

6) Will he try to become a truly professional salesman and not just an order taker?

7) During temporary slumps from his own failure or any other cause, will he be loyal to your company and the lines he represents?

8) Do you fully believe he will conduct himself so that everyone he contacts will admire him, his company, and the product he represents?

9) Does he have the capacity to recognize his own mistakes and profit by overcoming his own shortcomings?

10) Does he now possess or can you provide the spark to light his fire of enthusiasm so he will be "afame" with the outward appearance of sales success?

Our next article will discuss a merchandising plan and salesmen's aids.

Convenience is the Theme in

... where the emphasis is on practical equipment location and storage facilities, and future expansion is written into the plans



STORAGE LOFT has two levels for bins; second level is located over passageway. The 2 × 10 at right provides access to the top tier of bins

1

MANY WARM AIR heating dealers today are feeling the need for additional working space in their shops. Some have done something about it. One who has is Francis E. Bockardt, Bockardt-Heat, Utica, N. Y. Mr. Bockardt grew up with the warm air heating business (his father was one of Utica's earliest dealer-contractors) and the use of the tools and equipment found in every sheet metal shop is second nature to him. Thus, when he decided to build a new sheet metal shop he was well aware of the factors involved in equipment location, working space and convenience. The floor plan of the shop shows the engineering that entered into its layout. What the floor plan doesn't show is the planning that has been incorporated for expansion of the shop to handle a still larger variety of work.

Future Growth Provided for

The plan for expansion includes the structural details of the shop as it now stands yet it is expected that when the shop is enlarged the floor area will be doubled. With these plans in mind the roof for the present shop was slanted upward to one side of the building. When the time comes to add the second section, the west wall will be removed and the new roof slanted toward the west, making the peak of the roof at the present west wall.



END VIEW OF SHOP illustrates planning which went into location of work bench (right), sheet metal working tools (left) and parts storage bins in background

2

The plans for the future can be carried out without concern for additional real estate, as the property to the west was purchased at the time the present shop location was acquired.

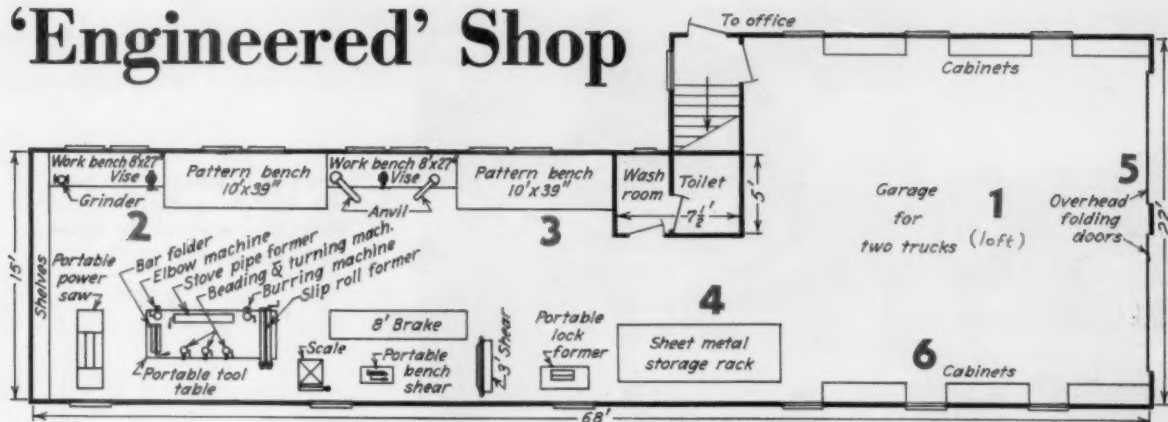
In planning the shop, primary consideration was given the window area and lighting arrangement. Every effort was made to eliminate shadows. The 15 × 45 ft shop has twice as many longitudinal feet of glass as it has solid wall. One row of fluorescent lights is set over the work benches 2 ft from the east wall. The second row of lights is 6 ft from the west wall and directly over the line of tools in that area. Both rows of fluorescent lights run practically the entire length of the shop, ending about 8 ft short of the south end.

Equipment Layout Shows Foresight

The primary consideration in locating the equipment in a new shop is that plenty of space be allotted between equipment and tools to permit workmen to move freely in and out with sheets and fabricated parts and yet be handy to the pattern layout bench.

Another important consideration is the location of the sheet storage rack convenient to an unloading spot and easily accessible to workmen. Bockardt-Heat met this requirement by leaving one end of the shop open to the

'Engineered' Shop



Planned layout pays off in increased production

garage where the sheet storage rack was set up at one side of the building. The rack was fabricated by Mr. Bockardt from $1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{4}$ in. angle iron (see illustration). It stands 96 in. high, has 15 shelves 42 in. wide. The top racks are used to store vent pipe for oil tanks. The remaining shelves are used for various gages and widths of sheet metal.

A study of the floor plan will show the various pieces of equipment and their location. The stationary equipment (shear, brake and rolls) is located nearest the point where the sheet is being handled and the tools for use with the smaller pieces of metal are mounted on casters for mobility.

Diffusers Made in the Shop

The shop is heated by a horizontal suspended furnace that supplies a perimeter heating system. The diffusers were fabricated in the company's shop. They are similar to the baseboard type; however, they are located just beneath the window sills, run the entire length of the shop and discharge their air toward the flow. Mr. Bockardt explains that with this type of air distribution the air velocity can be high enough to fan out across the room and assure a good air temperature from floor to ceiling. He doesn't recommend this type of system for residential use but has found it ideal for shop application.

The two pattern layout benches are slanted (see photo) toward the worker. Mr. Bockardt says this makes it easier for the workman to reach the far side of the sheet and that any scratches made by the marking awl are easier to see. Each pattern bench is located next to a double window with a line of fluorescent lights directly above for use on cloudy days and when evening work is necessary. Each layout bench is 39 in. wide and 10 ft long.

Between the two layout benches is a work bench 27 in. wide and 8 ft long. This bench has a vise and two mandrels. Between the end wall and the far pattern bench



3 PATTERN LAYOUT BENCH is slanted toward the workman to enable him to reach far side of the sheet conveniently



4 SHEET STORAGE RACK is easily accessible for both stocking (from front) and withdrawal (from rear)



5 GARAGE ALSO provides a handy and spacious temporary storage place. Shop is behind the garage, runs toward the next street



6 GARAGE WALL is used for storage cabinets similar to this one which is for pipe fittings

is another 27 in. \times 8 ft work bench with a heavy duty vise, anvil, and a combination power grinder and buffer.

The north wall is utilized as a parts storage space. There are five shelves 12 in. deep running across the length of the wall; each has several partitions to keep the parts separate and to add rigidity to the shelf.

The shop is directly connected to the two story, two-car garage, which also serves as the company's warehouse. Each side of the garage is lined with shelves and cabinets. Each of the cabinets serves a separate purpose. There is one for registers and grilles, one for spare burner

parts, another for heating controls and a fourth cabinet for pipe fittings and copper tubing. The latter is a great time saver as each of the many types of pipe fittings are neatly stacked in separate compartments. The quantity on hand as well as the availability of the size fitting needed is well worth the time it takes to set up this system of storing pipe fittings.

The second floor of the garage is the storage loft for duct section fittings. The high ceiling provides maximum storage space. To make it easy for workers to reach the upper tier of bins, a built-in platform (2 \times 10 in. board) was erected in front of the center row of bins.

The front of the loft has a 4 \times 5 ft loading door so large cartons may be hoisted to the storage area. The stairway to the loft is against the north end.

Truck Signs Bolster Advertising

Mr. Bockardt's talents aren't restricted to engineering. He is a good merchandiser and keeps the public informed of his services. His trucks carry a message as they go about their daily routine. On each side of each truck is large clear lettering that gives his name, address and telephone number. It is easily read in the brief time the public has to see the truck while it's passing a point. Above the compartments, which end about 18 in. below the top of the truck's cab, is another sign. On a white background 5 and 6 in. letters form the words "Converting to Gas Heat?" Below this line is lettered "We have been installing gas heating for 18 years." At the right of the sign, in 2 1/2 in. letters is:

- Free survey
- 24 hour service
- Modern sheet metal shop
- Installation guaranteed
- Convenient terms

Anyone interested in heating is bound to be attracted by such an appealing message and there is little reason to doubt that before long Mr. Bockardt's plans for expanding the area of his sheet metal shop will be put to use.

Laying Out a

Deck Ventilator for Small Boat

... with 1:2 ratio of pipe to cone mouth
air inlet and 5 to 10 deg pitch of the tapered end

THE PATTERN PROBLEM for this month was requested by a subscriber to *American Artisan*, and since March is the month for getting small craft ready for late spring and summer sailing, consideration is given the small craft ventilator. The ventilator as presented in Fig. 1 is as effective as the round and oval type ship ventilator. It lacks the ornamental quality but is easier and cheaper to fabricate.

The dimension ratio of the 1 in. pipe to the 2 in. cone mouth air inlet opening is the acceptable standard for most ship ventilators. The 10 deg pitch down as shown on Fig. 1 is flexible through 5 to 10 deg.

Two other types of ventilators will be presented in future articles in this series.

Fig. 3 is developed first; Fig. 4, the taper pattern, is developed from Fig. 3. The round pipe pattern, Fig. 5, follows.

Simplified Method Drawing, Fig. 3 —

a) Draw the vertical center line marked CL. On this line establish the point O. To the right and through point O draw the center line of the intake cone at 80 deg to the vertical center line. With point O as center and radius $\frac{1}{2}$ in., draw a circle.

b) From point O measure down 2 in. and mark the point D'. Through this point draw a line perpendicular to and extending on both sides of the vertical center line. From D' measure $\frac{1}{2}$ in. to the right and to the left, and mark the points A' and G'.

c) From points A' and G' draw lines perpendicular to line A'G' and tangent to the 1 in. diameter circle.

d) From point O, measure 1 in. to the right on the 80 deg center line and mark the point S. Draw a line through point S perpendicular to the 80 deg center line. Measure 1 in. above and below point S and mark the points 1' and 8'.

e) With S as center and radius 1 in., draw a half

circle to the right. Divide the half circle into six equal spaces and mark the points 1', 2', 3', 4', 5', 6', 8'. Through the points draw lines perpendicular to and intersecting line 1'8'. Mark the points U, T, S, V and W.

f) From point 8' draw an extended line to the left and tangent to the circle. From point 1', draw a line tangent to the circle to intersect the line drawn from 8' at point R.

g) Mark the intersection point of the perpendicular line drawn from A' and line R8' with the number 1. Mark the intersection point of the perpendicular line drawn from G' and line 1'R with the letter Z. Through points 1 and Z draw the intersection line of the round pipe and taper.

h) With D' on the round pipe diameter line as center, and radius $\frac{1}{2}$ in., draw a half circle to intersect points A' and G'. Divide the half circle into six equal spaces and through the points draw lines perpendicular to line A'G' to intersect the line 1-Z. Identify the lines with the letters A, B, C, D, E, F, G.

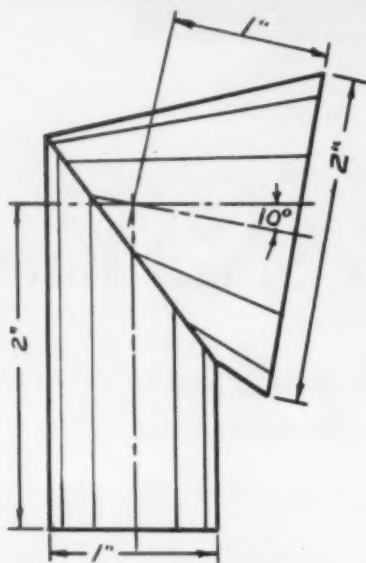
i) From point R, draw lines to points U, T, S, V, W on the 2 in. cone diameter line; from the intersection points of these lines and the cone pipe intersection line 1-Z draw lines perpendicular to line RS to intersect the line R8' at points 2, 3, 4, 5, 6 and 7.

To Lay Out the Taper Pattern, Fig. 4 —

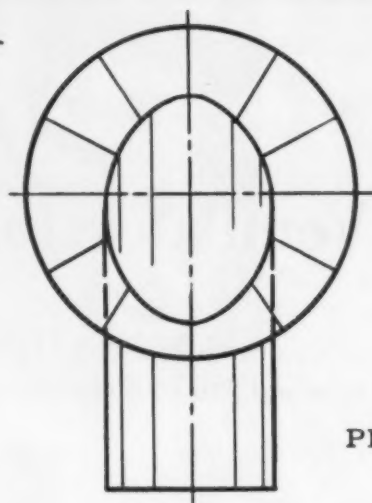
a) Set a compass at line length R8' (Fig. 3) and with point R as center, draw a long arc to the left of point 8'.

b) From point R draw the work line marked R8. This line can be drawn in any position to the left of line R8' (Fig. 3). Establish point 8.

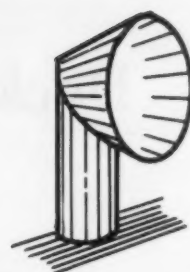
c) Set a compass at arc distance 1'2' on the half circle (Fig. 3) and with point 8 (Fig. 4) as working point, step off 12 equal spaces around the arc. Mark



1 FRONT VIEW, and . . .

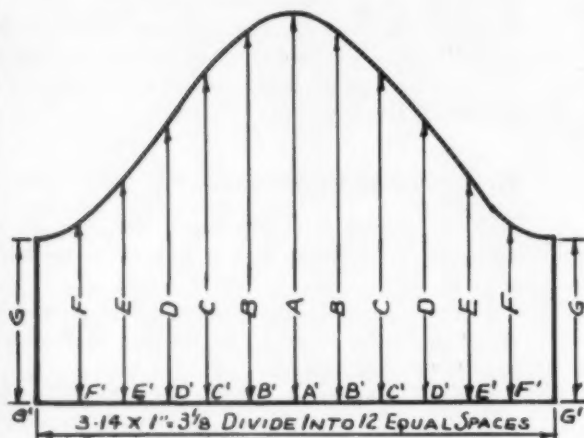
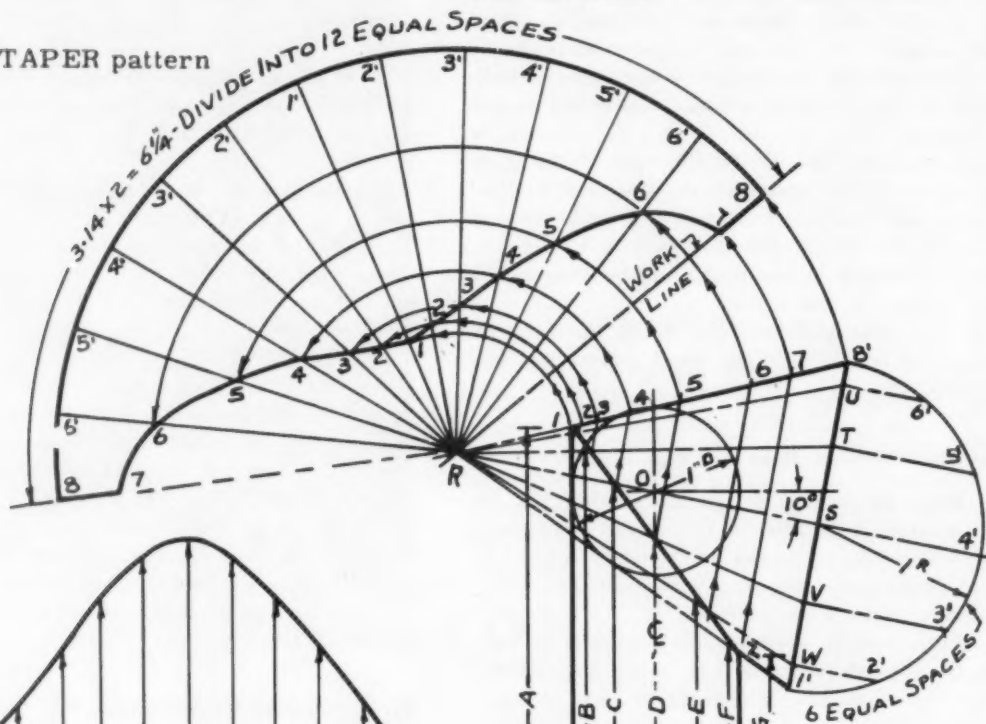


2 END VIEW of
deck ventilator

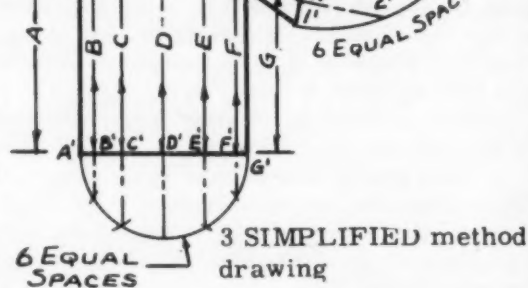


PICTORIAL drawing

4 TAPER pattern



5 ROUND PIPE pattern of fitting



3 SIMPLIFIED method
drawing

the points 6', 5', 4', 3', 2', 1', 2', 3', 4', 5', 6' and 8.

d) From point R, draw lines R6', R5', R4', R3', R2', R1' and R8.

e) Set a compass at distance R7 on Fig. 3, and draw an arc to intersect lines R8 (Fig. 4). Mark the points 7.

f) With point R (Fig. 3) as center, and radius R6, draw an arc on Fig. 4 to intersect lines R6'. Mark the points 6. With R as center and radius R5, draw an arc to intersect lines R5' (Fig. 5). Mark the points 5.

g) With R as center and radii R4, R3, R2, R1 (Fig. 3) draw arcs on Fig. 4 to intersect lines R4', R3', R2' and R1'. Mark the corresponding points 4, 3, 2 and 1.

h) Through the developed points draw the pattern outline for Fig. 4.

The Round Pipe Pattern, Fig. 5 —

a) Calculate the length of the pipe circumference line by multiplying the given pipe diameter by the constant 3.14. Thus, 3.14×1 in. diameter equals $3\frac{1}{8}$ in.

b) Draw the $3\frac{1}{8}$ in. circumference line G'G'. Divide the line into 12 equal spaces and mark the points G', F', E', D', C', B', A', B', C', D', E', F', G'. Through the points draw lines perpendicular to line G'G'.

c) Transfer line length G from Fig. 3 to lines G' on Fig. 5; line F from Fig. 3 to lines F on Fig. 5; and lines E, D, C, B and A in their proper sequence from Fig. 3 to the corresponding lines on Fig. 5. Through the developed points draw the pattern outline.

Mark the patterns for fabrication and indicate that the seams and joints shall be welded and ground smooth.

When Partial Payment Constitutes Settlement . . .

. . . the payment must be accompanied by a declaration that its acceptance by the creditor implies cancellation of the unpaid balance

IN A RECENT LAWSUIT a salesman had received a check for commissions earned by him on the sale of equipment together with a letter stating that the check "we believe is fair compensation for your past services to us."

The salesman kept the check and replied that the amount was not satisfactory, that the records of his sales showed many times that amount due him and demanded payment of the balance.

In holding that the acceptance and retention of this check was not a settlement and did not bar the salesman from a recovery of any additional commissions due him the court said:

Condition Must Be Stated

"Where there is no dispute as to the facts a payment of part of a balance due is not an accord and satisfaction. To constitute an accord and satisfaction the offer must be accompanied by a declaration that if the party to whom the offer is made takes it he does so in satisfaction of his demand.

"The check in question was not sent on such condition. There was merely the expression of an opinion that the employer thought that was all this salesman was entitled to receive because the employer had some supposed grievance. When the salesman accepted the check no implied release of the employer arose."

In a case before one of the southern courts, a statement of an account was made up by the customer and forwarded to the creditor with notice that the payment was in full settlement. The creditor kept the money but sued for recovery of the balance.

Unpaid Balance Lost

In its decision of this case the court commented, "Where a debtor remitted to a creditor less than the amount of the debt claimed by the creditor upon the distinct understanding that the sum was to be received in full discharge of the debt, if the creditor did not within a reasonable time after the money was received, repudiate the offer and return the money remitted to him, all liability

on the debt would be discharged."

Another decision in New York State that has become an authority on this principle was made in a lawsuit over a bill received by a customer for \$670. In an honest belief that the amount of the bill was excessive the customer sent a check for \$400 with a letter that the amount remitted was in full satisfaction and that he hoped the matter would be viewed in the spirit in which he had considered it in his efforts to fix an amount fair to both.

Upon receiving the check the creditor deposited it in his bank and sent a further statement of the account on which was credited this payment with an unpaid balance of \$270 for which he sued.

Only One Alternative

"Upon receipt of this letter," said the court, holding the account to have been settled in full, "the creditor had but a single alternative presented for his action — the prompt restoration of the money to his debtor or the complete extinguishment of the debt by its retention. The acceptance of the money involved the acceptance of the condition. The one could not be taken and the other rejected."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



AIR CONDITIONING HANDBOOK

**How to Solve Engineering
and Installation Problems**

Those who will be in the drivers' seats in the approaching boom are preparing now for their roles as responsible dealers in comfort by developing answers to such questions as . . .

Where and How to Reduce Heat Gain Loads

By S. W. Reid

**Air Conditioning Engineer
Gilbert Associates, Inc.**

WE ARE CONCERNED this month with the house and what can be done to keep the cooling load to a minimum. The air conditioning dealer can contribute invaluable advice under two sets of circumstances. One involves the design of a new house, the other involves the existing house. To give such advice, the dealer must understand the nature of the residential cooling load.

Conclusions drawn from market studies have led the president of a major concern manufacturing air

conditioning equipment to predict that by 1960 we can expect to see central air conditioning being installed in homes at the rate of well over one-half million systems annually and that by 1965 the rate will have increased to 1,500,000 a year. Anticipation of his share of this business potential should be most gratifying to the dealer who has struggled to establish himself in this relatively new field. But American homes can be equipped with cooling systems at the predicted rate in 10

years only if there are enough dealers preparing themselves now to do this tremendous job.

Sizing Know-How Comes First

The technical know-how which a dealer organization must have to be successful in the air conditioning field can be broadly classified under the same general headings that might be used for any mechanical product. Thus, he must know how to determine the size of equipment needed, he must know how to apply it prop-

erly and he must be intimately familiar with it in order to render efficient service. These three categories cover a lot of ground, and into one or more of them can be placed most of the subjects in this series. This article deals with one aspect of the know-how needed to determine the size of cooling equipment needed to air condition a home.

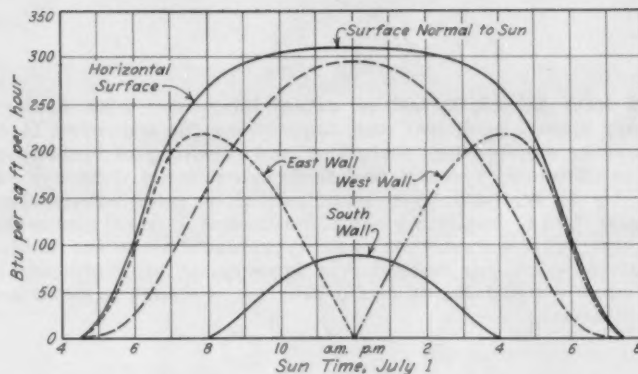
Sell Comfort First

The dealer whose primary objective is to move merchandise will not be building the technical know-how which is necessary for long run success. If he is vitally concerned about pleasing his customers, he is not merely selling equipment, he is selling comfort. And customer satisfaction goes hand in hand with comfort. The dealer who welcomes the responsibility for both will want to see his customers get the most of each for the smallest investment that is consistent with good practice. He will not hesitate then, to provide his customers with all the best advice he can give toward that end.

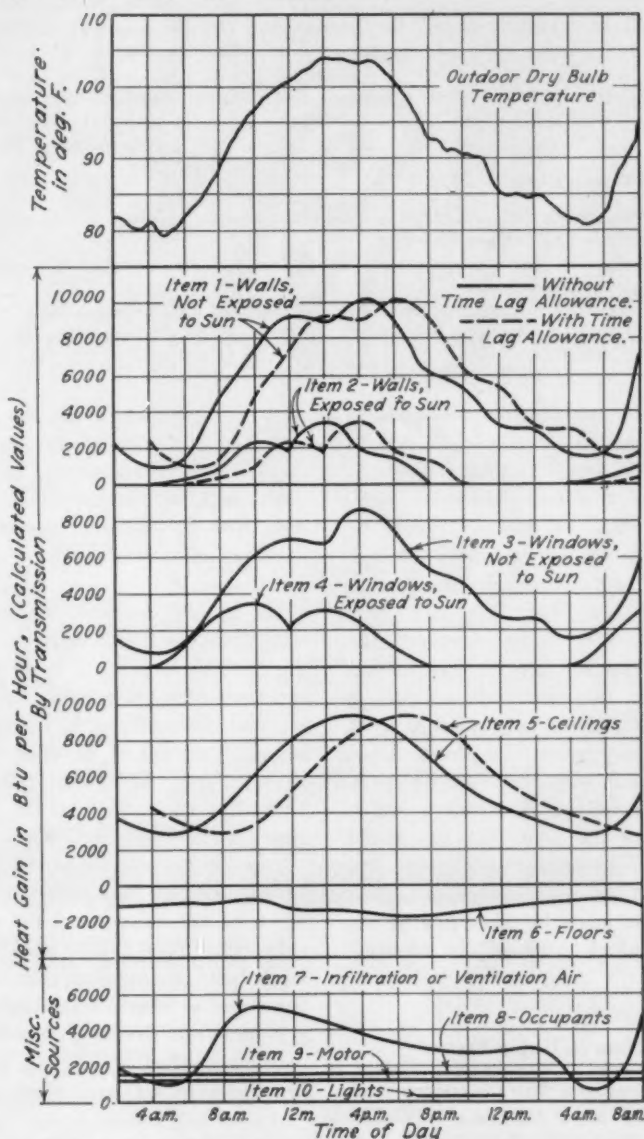
Those of us in the business are burdened with a procedure which we must always follow to get at the heart of any air conditioning problem. This is the load calculation, and for any given problem it can be quite complicated or quite simple depending upon the degree of refinement which one chooses to reflect in the result. The dealer, quite rightfully, would not take as much time nor exercise quite as much care in a load determination as would, for instance, a man doing research for the advancement of the art. For the dealer, therefore, various short form methods have been devised in order to reduce calculation time to a minimum.

Use Short Forms As Basis

The short form methods are quite acceptable. By their use, however, the matter of determining a load sometimes becomes entirely mechanical and there may be a tendency to accept figures which are "ground out" as final and unalterable, overlooking



1 SOLAR INTENSITIES normal to sun for July 1 on east, south and west walls and on horizontal surface prove value of building orientation and insulation. Curves are taken from University of Illinois Bulletin No. 290, Vol. XXXIV, No. 36, "Investigation of Summer Cooling in the Warm Air Heating Research Residence" by Konzo, Kratz, and Fahnestock



2 COMPONENTS IN COOLING load vary considerably in 24 hr cycle. Components were calculated without and with allowance for time lag. Curves are taken from University of Illinois Bulletin No. 305, Vol. XXXV, No. 101

THIS NEW SERIES, based on actual interviews with dealers, covers known problems and suggestions for improved techniques in engineering, installing and servicing of residential air conditioning systems and their components. Previous series by S. W. Reid have been published continuously since August 1952, beginning with fundamentals and continuing through the treatment of specific problems since the fundamentals series was concluded in January, 1954. Highlights of the previous discussions and a preview of things to come are listed below:

Previously covered are . . .

Controlling humidity regain with cooling coil bypass when the condensing unit is off Jan. 1956
 Sizing refrigerant lines for remote installations . Dec. 1955
 Determining if the blower used for an existing warm air heating system is large enough for summer cooling Nov. 1955
 Eight combinations for arranging heating and cooling equipment, the advantages and disadvantages of each Oct. 1955
 Review of air flow patterns for cooling applications with recommendations for selecting and locating registers Sept. 1955

On the fire are . . .

Problems involved in converting water cooled equipment to air cooled equipment
 Effect of introducing outside air into a residential air conditioning system
 Effect of oversizing and undersizing cooling equipment
 Important factors to weigh when installing evaporators

certain factors which may be peculiar to a particular installation and might affect the result. Human nature usually directs one to follow the easiest path, which in this case would be taking things the way they are found, making one calculation and accepting the answer as final.

Because the load calculation is the key to solving any air conditioning problem, the basis upon which it is made should not be established without consideration. The dealer should not only be prepared to recognize the relative weight of elements which comprise the load, but he should consider it a part of his responsibility to point out to prospects how certain measures might be taken to alter the effect which some of the elements have.

Solar Heat is Major Factor

As compared with the cooling load for most other buildings, the residential load is peculiar in that it is comprised largely of heat which originates from the sun. The amount

of heat energy which falls upon the structure is substantially greater than the portion which eventually becomes part of the cooling load. Certain factors involving location, design and construction determine what the differential is.

Let us consider some design factors. The present day house is characterized by large glass areas which can be very troublesome to the heating and air conditioning dealer unless he knows how to treat them. Radiated heat, direct solar radiation especially, can pass through most glass with very little loss. When these rays strike the interior of the house and furnishings, they turn into heat which cannot escape, and the space temperature rises. Double glass is not much better in stopping such radiation than is single glass, although it is quite effective as a measure for reducing conducted heat and should be considered for large glass areas.

Face Glass Areas South

Since direct solar radiation can

enter only those windows which the sun actually shines upon, the direction which windows face is quite important. Of course, not much can be done about window direction except in the planning stages of a new home. If a dealer were called upon at such a time, he should recommend that major glass areas be in a south wall. This may sound strange to the layman, but it is based upon very sound reasoning.

Glass in a south wall actually lets in very little radiation even with no shading because of the steep angle of the sun which is high overhead in the summer. The steep angle makes it possible to shade south windows with a minimum roof overhang or with awnings. In the winter when the sun is lower in the sky an overhanging roof on the south will not prevent desirable radiation from entering the room.

From the cooling standpoint, a glass area on the west side adds most to the load. It is very difficult to shade properly and still retain any usefulness as a window, since the solar radiation continues to fall on it from mid-afternoon until sunset. Glass in an east wall presents the same problem in the morning that west glass creates in the afternoon. Morning radiation entering through east glass in the summer tends to destroy the heat reservoir effect of the structure which may be important in absorbing some of the load during peak hours.

Check Wall Orientation

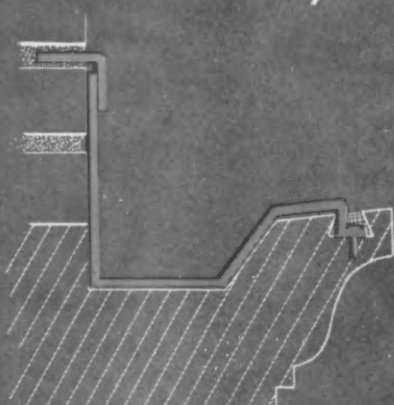
Recommendations with respect to glass also apply to walls. If there is any choice in the planning stages, the largest walls should be on the south and north sides of the house from the air conditioning standpoint. South walls receive solar rays at a steep angle and therefore, like south glass, are more easily shaded by roof overhang. West walls, on the other hand, receive more intense radiation because the angle of the solar rays is more nearly perpendicular.

The facts about the effect of solar radiation upon the cooling load have been under investigation for a num-

(Continued on page 92)

HOW WOULD YOU DO IT?

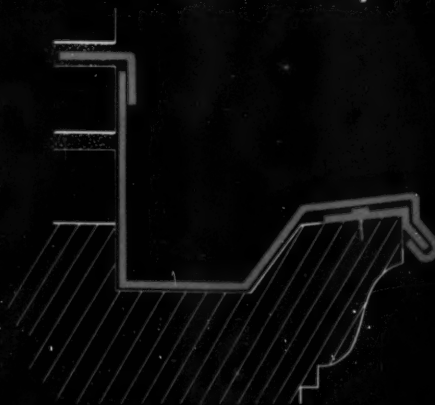
... this way?



GUTTER LINING DETAIL
IN STONE CORNICE

Fig 1

... or this way?



GUTTER LINING DETAIL
IN STONE CORNICE

Fig 2

In Fig. 1 the detail illustrates a method of securing the outer edge of a gutter lining in a stone cornice and a masonry wall. The metal is turned down into a reglet in the stone and securely fastened with screws in lead shields.

In Fig. 2 the outer edge of the gutter lining is secured by being hooked over a previously placed edge strip. The edge strip is made from 8'-0" long pieces and secured to the stone by brass screws in lead shields. The edge strip is extended to form a drip as shown and the copper sheets used for the gutter hook over the edge strip to form a $\frac{1}{2}$ " loose lock.

The method illustrated in Fig. 1 is most unsatisfactory. As all materials expand and contract, with the outer edge securely held, movement is restricted resulting in broken seams and the formation of buckles and pinches in the metal that lead to eventual failure.

When the outer edge is hooked over an edge strip as shown in Fig. 2, freedom of movement is provided.

If the proper gauge metal is used for the gutter lining, full movement is transferred to the expansion joint and buckles and pinches do not occur.

We do not wish to presume to tell you how to install gutters, leaders, roofs, flashing, coping covers, etc., because there are many methods which you no doubt have found to be satisfactory. The purpose of this advertisement is to point out the methods of installation that have been proved by many years of use, and backed by more than a century and a half of experience in working with copper, to be the most satisfactory techniques. You will find these methods in Revere's 110 page brochure, "COPPER AND COMMON SENSE." Send for a copy today. And remember: Revere has a staff of specialists known as Technical Advisors, whose experience qualifies them to render valuable service and advice regarding the use of metals in the building field. Feel free to consult with them at all times regarding the use of Revere Copper; you incur no obligation. Revere Technical Advisors may be contacted through the Revere Office nearest you.



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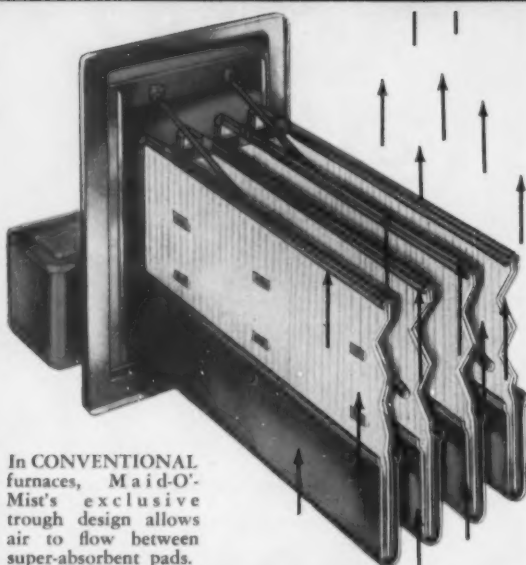
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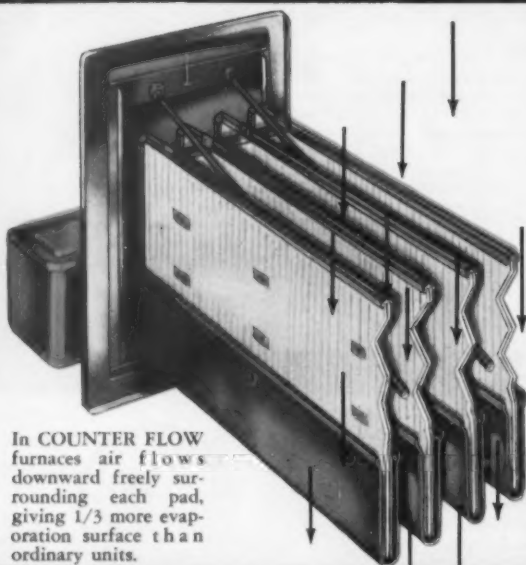
Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y.
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Saves *half* the time to INSTALL! Gives a *third* MORE EVAPORATION AREA!
Has *two-thirds* LESS AIR RESTRICTION IN THE PLENUM!



In CONVENTIONAL furnaces, Maid-O'-Mist's exclusive trough design allows air to flow between super-absorbent pads.



In COUNTER FLOW furnaces air flows downward freely surrounding each pad, giving 1/3 more evaporation surface than ordinary units.

More Humidity per dollar cost

Why More and More Furnace Contractors Are Insisting on the MAID-O'-MIST Humidifier? The reasons are sound. It's a cinch to install, rarely does it require service calls, the cost is small and it gives lasting satisfaction to the customer.

You can see in the picture that MAID-O'-MIST has no flat bottom pan to block the flow of air . . . that its $\frac{3}{8}$ " individual copper troughs are spaced an inch apart to allow unrestricted air-flow between evaporator pads, giving a third more evaporating surface.

Perfect for small plenums, it is quick and easy to install. What's more, it is the *only* standard unit that fits BOTH conventional or counter-flow warm air furnaces.

Use MAID-O'-MIST and you'll agree . . . it's a very remarkable humidifier . . . at a very remarkable price.

60% LESS AIR RESTRICTION IN PLENUM

30% MORE EVAPORATION AREA

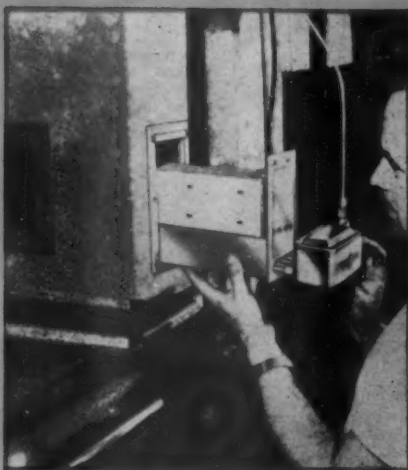
50% LESS INSTALLATION TIME

AUTOMATIC HUMIDIFIERS WATERLINE CONTROLS
AUTO VENTS . . . HEATING AND AIR CONDITIONING SPECIALTIES

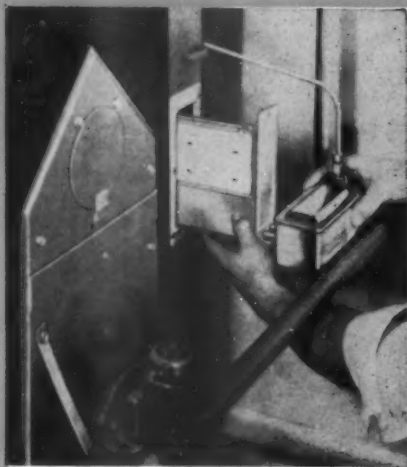
MAID-O'-MIST, Inc.

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The only standard unit
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FOR CONVENTIONAL warm air fur-
naces cut opening in plenum and make
water connections. 9 sizes available
with evaporation capacities of 1 to 10
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FOR COUNTER FLOW, because of its
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For dependable water level control use **MAID-O'-MIST FLOAT CONTROL VALVES**

Thrifty answer to limited space in
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No 51

FAMOUS No. 50 SERIES

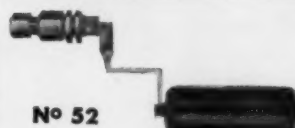
Compact, precision-designed, you can count
on MAID-O'-MIST float control valves to
effectively meet your water-level control re-
quirements. An acknowledged leader in its
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performance.

No. 51 FLOAT CONTROL VALVE

Only 5 $\frac{3}{4}$ " long overall, including copper float 2 $\frac{1}{8}$ "
in diameter x 1 $\frac{1}{4}$ " deep. Stem and body made of
brass . . . valve seat of hard nylon, protected with
fine metal screen. Can be fitted in 9/16" hole or
screwed directly into tapped opening. Up to 85 lbs.
pressure; 1/2 gal. per minute at 50 lb. pressure.

No. 52

Similar to No. 51, but de-
signed for 1 gal. per min-
ute capacity at 50 lbs. pres-
sure, with pressures to 125
lbs. Overall length, 8",
with 1 $\frac{1}{2}$ " x 4 $\frac{1}{8}$ " long float.



No 52

No. 59

Valve is vertically mounted
with special bracket to
mount on reservoir or pan
well above water line. Just
5" long.



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No. 6917

Series Diaphragm Valves

Heavy duty, large capacity
water level controls, rug-
ged and strong. Capacities
1 $\frac{1}{4}$ gal. to 6 gal. per min-
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Get full information from your jobber or write for catalog today!



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3217 NORTH PULASKI ROAD · CHICAGO 41, ILL.

Good Orientation, Insulation Check Heat Gain

(Continued from page 88)

ber of years. Fig. 1, taken from one such study, shows the relative sun intensities on an east, south and west wall as compared to a horizontal surface and one normal to the sun. The curves substantiate the reasoning behind the preceding discussion.

The house situated with its largest walls facing north and south has an advantage in the winter as well as in the summer. During cold weather when the sun is low in the sky, a large south wall will make the most of the solar radiation it receives during midday hours to help heat the house. Early morning and late afternoon sunshine on the east and west walls respectively during the heating season is neither as intense nor of as long duration as is radiation on the south wall.

The size of a house is a factor in the relative effect of wall orientation on the heating and cooling loads. The ratio of wall area to volume decreases rapidly with size. The small house has many more square feet of wall in comparison to its volume than has the large house. The effect of wall radiation is more pronounced on the small house than on the large house, and the importance of proper orientation, therefore, is greater for the small house than the large.

Shield West Wall

There are other suggestions which the air conditioning dealer can contribute to a prospect whose home is in the planning stage. Since the west wall is one of the largest contributors to the cooling load, it should be a garage wall if one is to be included in the plans. The garage space will separate the heated wall from the living quarters which are to be cooled. If this arrangement is not practical, it may be possible to plan a porch or a shaded patio on the west side of the house or to locate fast growing shade trees so the sun will not reach the wall except for a short time in the afternoon. If there is no room for trees, fast growing

TABLE 1—WALL, WINDOW and ceiling areas contribute most to total cooling load. Data is from University of Illinois Bulletin Vol. XXXV No. 101, "Summer Cooling in the Warm Air Heating Research Residence" by Konzo, Kratz, Fahnestock and Broderick. Table is based on Fig. 2, 2 p.m.

Item No.	Source of Heat Gain	Heat Gain, Btuh	Percentage of Cooling Load
1	Walls, not exposed to sun	9080	24.3
2	Walls, exposed to sun	3460	9.3
3	Windows, not exposed to sun	6740	18.0
4	Windows, exposed to sun	3120	8.4
5	Ceiling	9050	24.2
6	Floor	-1390	-3.7
7	Ventilation	4500	12.0
8	Occupants	1600	4.3
9	Motor	1200	3.2
10	Lights	0	0.0
Total		37,360	100.0

TABLE 2—EMPLOYING SUGGESTED cooling load reduction possibilities would produce marked saving in total and individual heat gain loads

Item	Source of Heat Gain	Worst Condition*		Best Condition**		Saving Percentage of Worst Total Load
		Heat Gain Btu	Percentage of Cooling Load	Heat Gain Btu	Percentage of Cooling Load	
1	Walls, not exposed to sun	9080	20.1	2560	14.0	14.4
2	Walls, exposed to sun	3460	7.6	980	5.4	5.3
3	Windows, not exposed to sun	6740	14.8	3778	20.5	6.6
4	Windows, exposed to sun	11,100	24.5	3120	17.1	17.6
5	Ceiling	9050	20.0	2000	10.9	15.6
6	Floor (Basement cooler than conditioned space)	-7390	-3.1	-1390	-7.6	0
7	Ventilation	4500	9.9	4500	24.5	0
8	Occupants	1600	3.5	1600	8.7	0
9	Motor	1200	2.7	1200	6.5	0
10	Lights	0	0	0	0	0
Total		45,340	100.0	18,348	100.0	59.7

*Walls not insulated, single glass, no awnings, ceiling as tested

**Walls insulated, double glass, awnings, ceiling insulated

vines of various sorts may be used effectively. The latter two suggestions apply to existing as well as to new homes.

Ventilated awnings will effectively shield glass from the sun, so will shade screens. Shielding is much more satisfactory on the outside than it is on the inside, since once the sun rays penetrate the glass and strike a window shade or some other object inside the house, the energy is transformed into heat and becomes a part of the cooling load.

Sky and ground radiation, often referred to as glare, are indirect solar radiation which has been reflected from vapor and dust in the air and from the ground. With respect to the walls and glass, sky glare is treated much as direct solar radiation by proper shading and shielding. Ground glare is largely a problem in cities where paved areas or adjacent building walls reflect heat toward the walls surrounding the cooled space. Decorative walls or fences of the patio type may sometimes be used effectively to shield building walls.

The suggestions given so far have been directed toward keeping the play of solar radiation on walls and

windows to a minimum. It is usually not practical to provide 100 percent shading. Certain walls and windows, therefore, will require a calculation for sun effect as well as the unavoidable conductance load which exists because of the difference in temperature between air on the inside and that on the outside.

Insulation Is First Defense

The rate of heat flow through a wall is largely a function of the amount of or lack of insulation. It should be considered for both new and old construction and used whenever it can be clearly justified. The wall with no insulation will soak up heat in depth, and its interior surface will reach a higher temperature than will the interior surface of an insulated wall. In the latter, heat is concentrated in that part of the structure outside of the insulation. This fact permits the insulated wall to cool off more rapidly each evening as the air temperature drops below the wall temperature and the daytime heat flow reverses. Because it cools off more rapidly, the insulated wall

(Continued on page 96)

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Professionally prepared newspaper ads, TV and radio spots will be placed for you by Mitchell's national advertising agency. Every detail is performed automatically . . . that's Automation Advertising!

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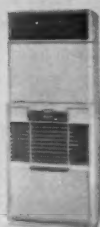
Personalized
**MITCHELL AIR CONDI-
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... is designed to protect you and insure greater customer satisfaction. It gives you simplified, easy to understand, commercial and residential contract forms and a new, business-like proposal.



**HG Series MITCHELL
YEAR ROUND AIR
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Cools in summer... heats in winter. Water cooled air conditioner gas fired furnace. Advance design cooling system available in 1½, 2 and 3 tons.



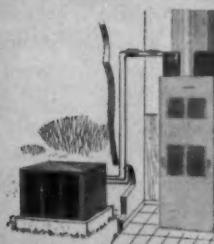
**S Series MITCHELL
SELF CONTAINED
STORE COOLER UNIT**

Features Slide-out Chassis. Welded hermetic cooling system. Electromagnetic Filter Eye. Low operating cost, easy installation. Available in air and water cooled models.



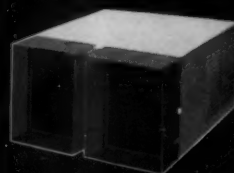
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RESIDENTIAL ADD-ON
AIR CONDITIONER**

Powerful hermetic cooling system for use with or without matching blower. Available in both air and water cooled models... 2, 3 and 5 tons.



**RA Series MITCHELL
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New, low cost, waterless air conditioner cools entire home. Uses same blower and ducts as heating system, fits most warm air furnaces. U. L. Approved for outdoor location of condensing unit. Available in 2, 3 and 5 tons.



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Heat Gain Precautions Save Customer Money

(Continued from page 92)

more quickly relieves the temperature potential from inside to outside and permits lowering the temperatures of the interior walls so they may absorb heat more effectively when the next daytime load is imposed.

Although wall insulation specifically placed to reduce the cooling load may be considered optional, ceiling or roof insulation is generally a must. It is easily installed in most existing houses and certainly presents no problem when planned as part of a new home. The roof absorbs a large amount of heat from the sun because the exposure period extends through most of the daylight hours and because of the angle which the roof makes to the solar rays. The upper two curves on Fig. 1 illustrate this. The long baking raises the temperature of the entire upper part of the house. Heat, even with insulation, penetrates down to the ceilings of rooms below the attic whence it is absorbed by the conditioned air.

Ventilation Aids Barrier

Whenever insulation is applied in the floor of an attic space, it can be made most effective as a heat stopper by the proper use of ventilation. For a given barrier, the flow of heat is a direct function of the temperature difference. Any step taken to reduce this difference will also reduce heat flow. Assume a room with an insulated ceiling below an attic is being maintained at 80 F when the outside temperature is 95 F. Because of the solar radiation on the roof, the attic temperature is 110 F. The temperature difference forcing heat to penetrate the ceiling is 30 deg. Since there is 95 F air available outside it would be possible to install a fan to ventilate the attic properly so the temperature would approach 95 F instead of 110 F. If this were done the temperature difference would reduce to 15 degrees, and heat penetrating the ceiling would be cut in half. Most homes with attic spaces do have small louvers at each end,

but these are generally not sufficient to have much effect upon attic temperature. If a fan were used, it would be sized to handle enough air to clear the attic in 1 to 2 minutes.

The cooling load on a house, because it is largely created by external weather, is quite complicated in nature and ever changing. Each 24 hour period, however, represents a complete cycle for in each period the load will reach a maximum and a minimum. Fig. 2 is a graphical representation of one such 24 hour cycle. The values shown were calculated for an actual home investigated by researchers connected with the Engineering Experiment Station of the University of Illinois. Curves are included to show how each of the 10 elements in the cooling load calculation varied.

Where Does Heat Enter?

Values listed in Table 1 were taken from Fig. 2 at 2 p.m. The percentages given apply only to the specific house checked and should not be generalized. They do tend to show, however, the relative magnitudes of the various components of the load. It will be noted that approximately a third of the heat gain entered through the walls alone (items 1 and 2). The walls were uninsulated frame with a heat transmission coefficient ("U" value) of 0.25 Btuh per sq ft per deg F. If 3½ in. of mineral wool had been used between the framing, the "U" value would have been 0.071 according to the ASHAE Guide. This would have effected a 72 percent reduction of the wall load which is proportional to the "U" value (making no allowance for the additional time lag which the insulation would provide). Since the uninsulated wall gain is about a third of the total gain, the overall reduction due to wall insulation would be about one-third of the wall reduction or about 24 percent.

For the windows not exposed to the sun a heat gain of 6740 Btuh is

given in the table. This represents 18 percent of the load and is based upon single glass in the windows. If double glass had been used, a reduction of 44 percent in this item might have been made. This represents an overall reduction of nearly 8 percent based upon the original total.

Item 4 in the table shows a value of 3120 Btuh for windows exposed to the sun; this is relatively low because outside awnings were used for shading. If awnings had not been used the heat gain through the sunlit glass would have been 11,100 Btuh. The awnings alone, therefore, represent a savings of 17.6 percent of what the total cooling load would have been under the worst conditions as shown in Table 2.

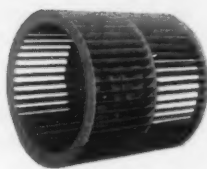
The official report of the study referred to above points out that item 5 in Table 1 represents a greater percentage of the load than it should since the attic floor was poorly insulated and because inadequate attic ventilation resulted in a large temperature difference across the ceiling. With about 3 in. of mineral wool insulation and proper ventilation it is estimated by this writer that the ceiling load could have been reduced from 9050 Btuh to 2000 Btuh which represents by itself a savings of about 15.6 percent of the worst condition shown in Table 2.

Huge Savings Are Possible

Table 2 was set up to summarize the effectiveness of the various cooling load reduction possibilities relating to the test house. The total percentage of saving is rather startling, but it does show what could be done. It would be possible to weigh the savings these figures represent against the cost of the measures suggested to determine just how much of the program should be undertaken. As stated before, the load and percentage figures apply only to the particular case in point. Each new case would have to be studied in a similar manner.

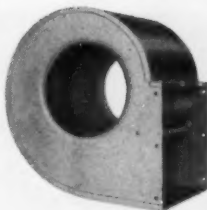
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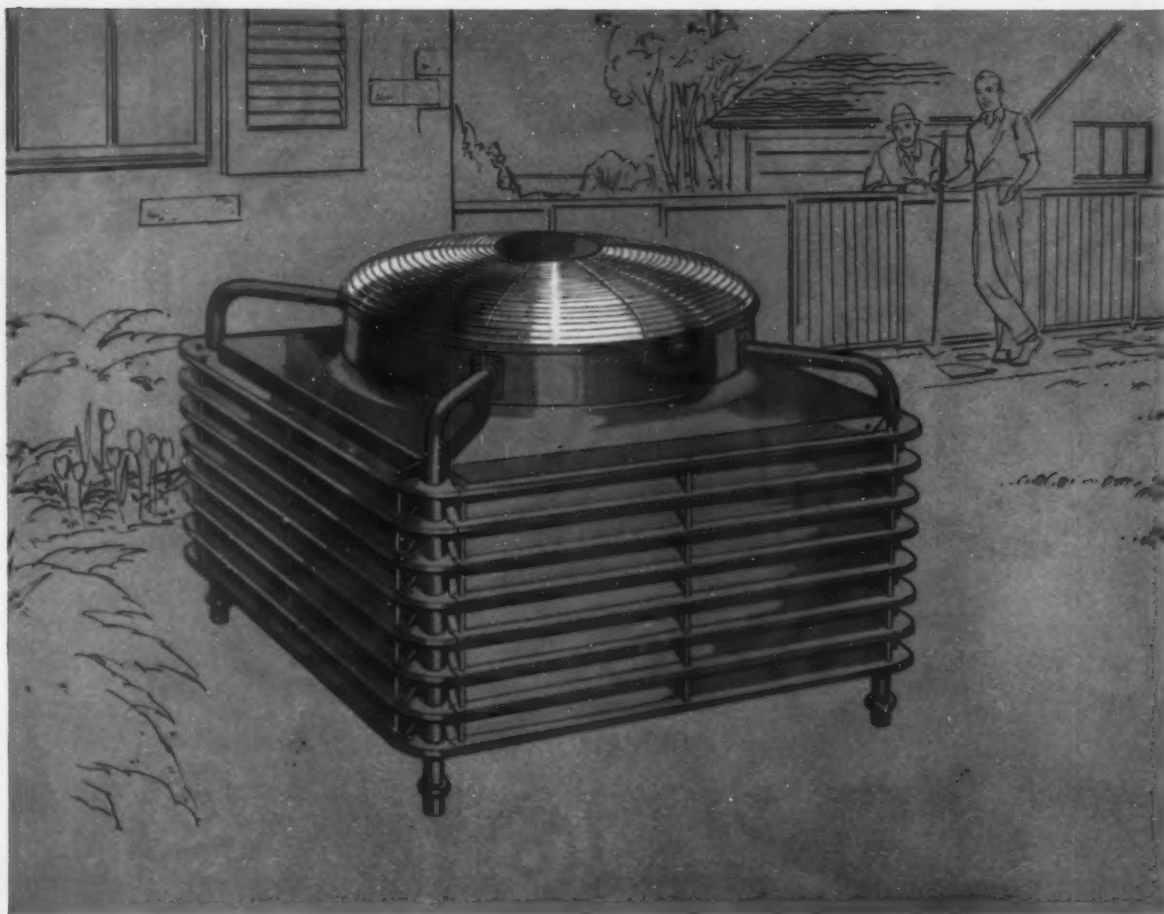
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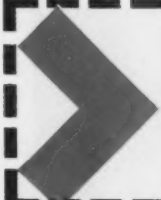
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IT'S BEAUTIFUL! Low, sleek, styled to be shown with pride in any yard—a far cry from unsightly, ordinary models.





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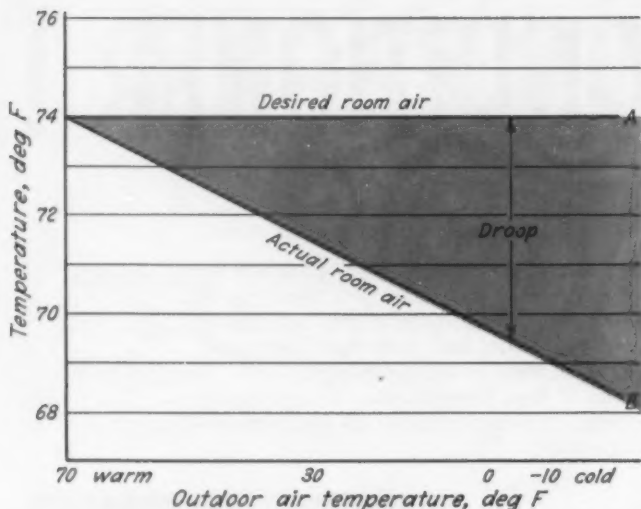
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What to Do About

Temperature Droop



1 TEMPERATURE DROOP condition is often caused by using oversized heater coil within the thermostat

Relocation of the thermostat may provide relief from the droop condition. Here's what to expect from high wall, low wall and exposed wall location as related to room comfort

By S. Konzo and H. D. Bareither
University of Illinois

LAST MONTH WE discussed the development of the thermostat from the basic bimetal element through the addition of a magnet and finally a heater coil to affect the behavior of the bimetal strip in accordance with residential temperature control requirements. We found that while each addition to the instrument produced worthwhile improvements, they were accompanied by certain penalties, among which is the condition known as "temperature droop," in which the actual room temperature may lag considerably behind the inside temperature of the thermostat because of the relatively short and infrequent periods of burner operation required to satisfy the thermostat itself. Fig. 1 shows the temperature droop which might be caused by using an oversized heater coil. This month we shall investigate temperature droop in more detail, and see what can be done to correct the condition with the equipment and knowledge now available.

The heating dealer might be inclined to scoff at the importance of this droop action and claim that he has never had any trouble from it. That is quite possible, especially in view of the typical homeowner's habit of jiggling the thermostat. We have noted that a corrective measure to obtain greater sensitivity from a thermostat gave a secondary effect that was not entirely desirable. In other words, the effect of droop was to provide a lower room air temperature in cold weather than was intended by the thermostat setting. Obviously, the simplest cure for this would be to reset the thermostat to provide say 75 F in cold weather rather than 72 F. Note, however, that after the thermostat is reset, the thermostat temperature may reach 75 F, but the room air temperature will still only attain 72 F. In very cold weather, a temperature of 72 F in the middle of the room may not be high enough to offset the cooling effect of cold walls and cold

(Continued on page 105)

these dealers
tell *Why*
they've switched
to

LENNOX

Heating and Air Conditioning





Partners Les James and Ross Delaney in their modern, attractive showroom.

THEY SWITCHED TO GET MORE

***"LENNOX is the best-known name
and is easier to sell"***

—says Les James of Inland Metals
Clarkston, Washington

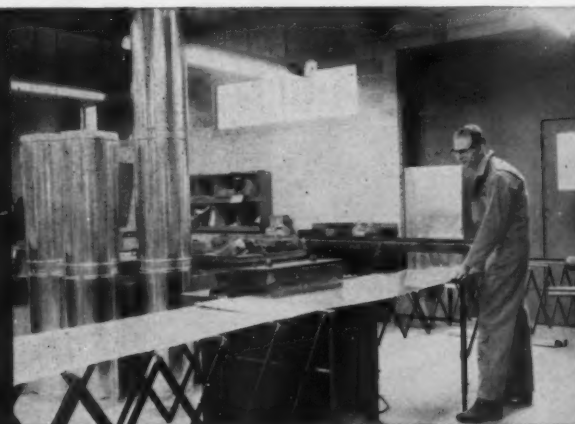


A famous architect was hired to design this beautiful modern building for Inland Metals.

"No matter where a person comes from, chances are he knows Lennox. Every check proved that Lennox is the biggest seller in the industry—so we decided to switch to Lennox heating and air conditioning. Also, I like dealing direct with the factory instead of buying through distributors. And since taking on Lennox, my volume has not only doubled, but I have far fewer call-backs for non-billable service."



Each prospective purchaser receives a detailed drawing of the proposed Lennox installation.



Inland was one of the first heating dealers to buy the new snap-lock machine, shown in operation.

to **LENNOX** PROFIT... MORE SELL-POWER

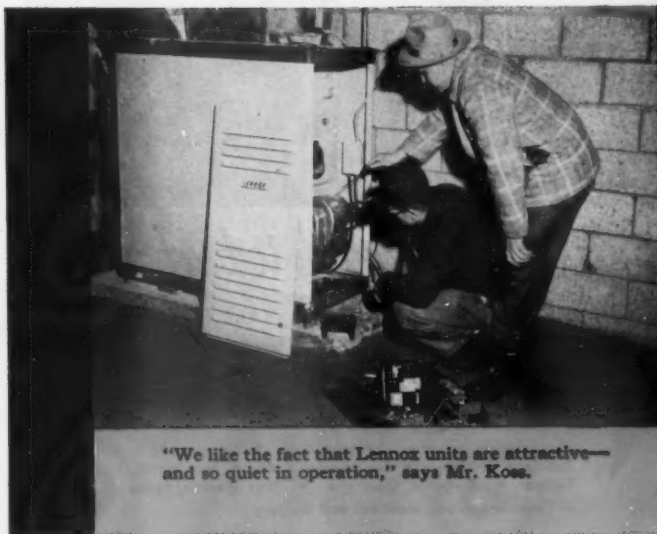
***"LENNOX is the top quality line...
and it's complete, too"***

—says Clifford Koss, Koss Plbg. & Htg.
Mosinee, Wisconsin

"I worked on most of the leading brands and knew that Lennox was tops—but was handling other makes. When an opportunity came for me to take on the Lennox line—I didn't have to think twice! The first year my sales more than doubled—and it's so much easier to sell Lennox. We don't have to worry about call-backs on installation service, either. That helps cut down expenses—build profit."



Although located in a town of 1,800 population, Mr. Koss finds the Lennox line is profitable.



"We like the fact that Lennox units are attractive—and so quiet in operation," says Mr. Koss.



Here Clifford Koss is prepared for a big year in air conditioning with Lennox.

*No wonder more and more dealers
are switching to **LENNOX***

IT'S THE NUMBER ONE INDUSTRY NAME



*Number One in so
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- in product development
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Lennox Industries Inc.
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Please send me, without obligation, additional facts about a
Lennox dealership.

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Salt Lake City, Utah • Los Angeles, Calif. • Fort Worth,
Texas • Decatur, Georgia • Des Moines, Iowa
In Canada: Toronto, Montreal and Calgary

Relocate Thermostat to Correct Droop Condition?

(Continued from page 100)

window surfaces. Hence, the homeowner finally shoves the room thermostat setting to a temperature level of say 78 F in an attempt to attain the same degree of comfort he experienced in mild weather with a 72 F setting. The homeowner may be doing this by daily adjustment of the thermostat setting and may never call the condition to the attention of the heating dealer. The dealer in turn may never have been confronted by thermostat droop until he installs a heater coil that has excess heating capacity.

Relocate the Thermostat

The thermostat manufacturers are not satisfied with a thermostat that requires continuous manual adjustment. Hence, another approach was tried to counteract the effect of droop. A number of years ago it was found that droop could be minimized by installing the thermostat nearer the floor. The reason why the relocation was effective may not be obvious, although it involves only the well known condition of temperature stratification. The explanation is given in Fig. 2.

If no droop existed and a room thermostat were located at the 60 in. level, the air temperatures at the 60 in. level would be constant, as shown by curve *B*, over a wide range of outdoor temperatures. However, the air temperatures near the ceiling would tend to rise as the weather got colder. This would be caused by the fact that with a convection system of heating, as is the case with most warm air and radiator types of heating systems, the burner would operate for longer periods of time in colder weather and the circulating air temperature would increase. Stratification of the circulating air takes place; the warm air rises towards the ceiling and the ceiling air temperature increases as the temperature outside the house gets colder.

Furthermore, in colder weather the currents of cool air descending from the cold glass and wall surfaces tend to settle toward the floor, so the floor air becomes cooler as the weather becomes cooler. This is illustrated by curve *C* (Fig. 2) which is representative of results obtainable with a forced air heating system.

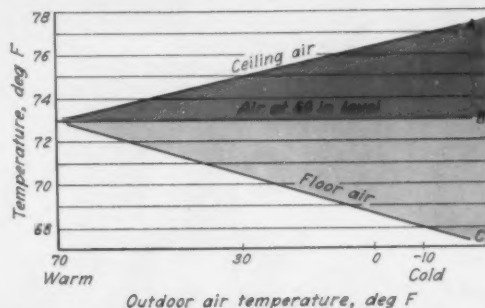
Many Factors Affect Floor, Ceiling Temperatures

The extent to which the curves *A* and *C* deviate from a horizontal line depends upon a number of factors, among which are the following:

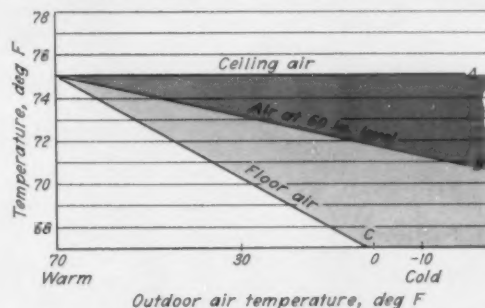
a) If the blower operates on the principle of continuous air circulation, the ceiling air temperature will be relatively low. That is, curve *A* in Fig. 2 will approach curve *B*.

b) By introducing warm air from the register into the

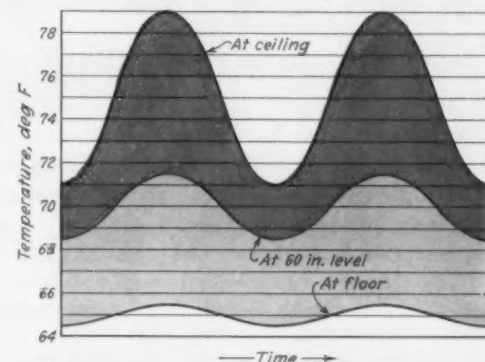
(Continued on page 108)



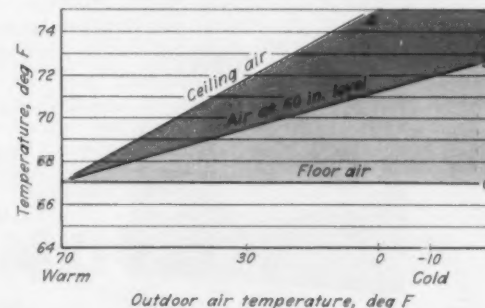
2 TEMPERATURE STRATIFICATION is largely responsible for effectiveness of low thermostat location



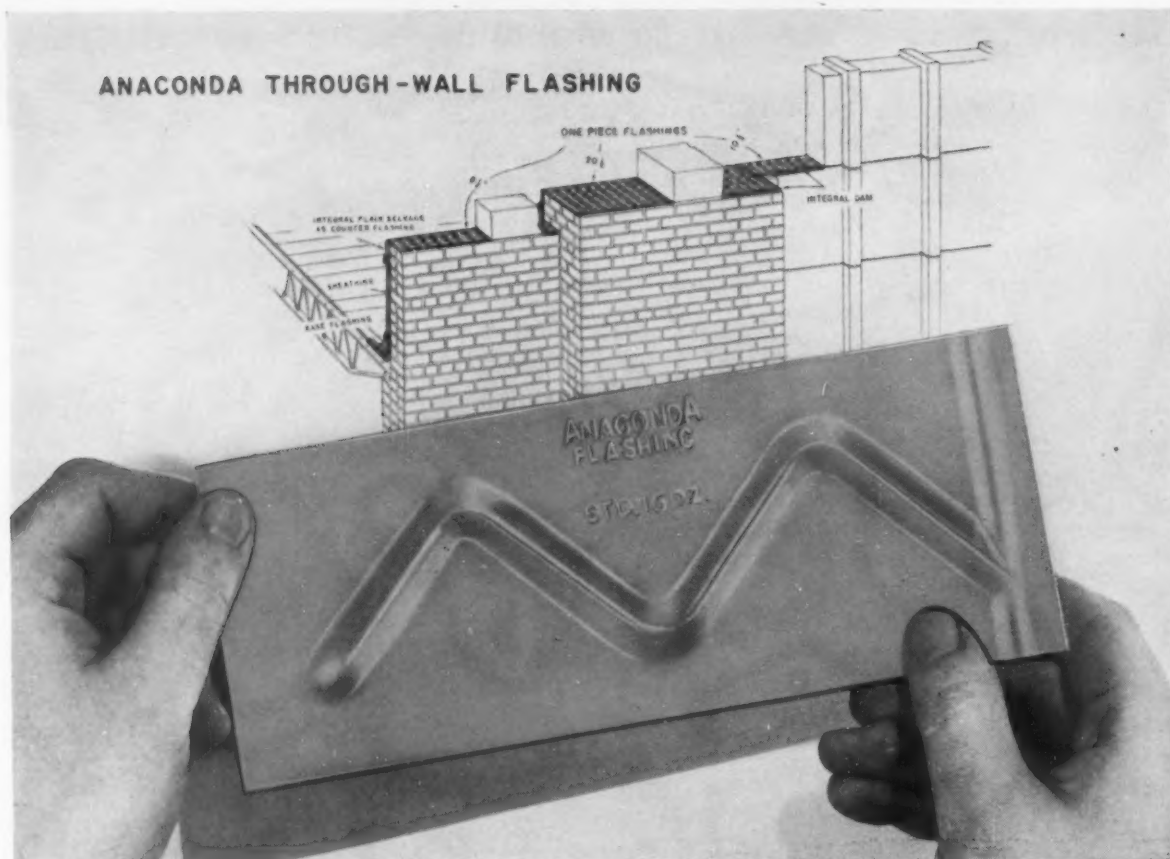
3 CEILING LOCATION of thermostat causes droop condition in living levels of rooms



4 TEMPERATURE FLUCTUATIONS are greater at ceiling than other levels when thermostat is high on wall



5 WITH FLOOR location of thermostat, temperatures at floor would be constant, 60 in. level and ceiling would experience negative droop



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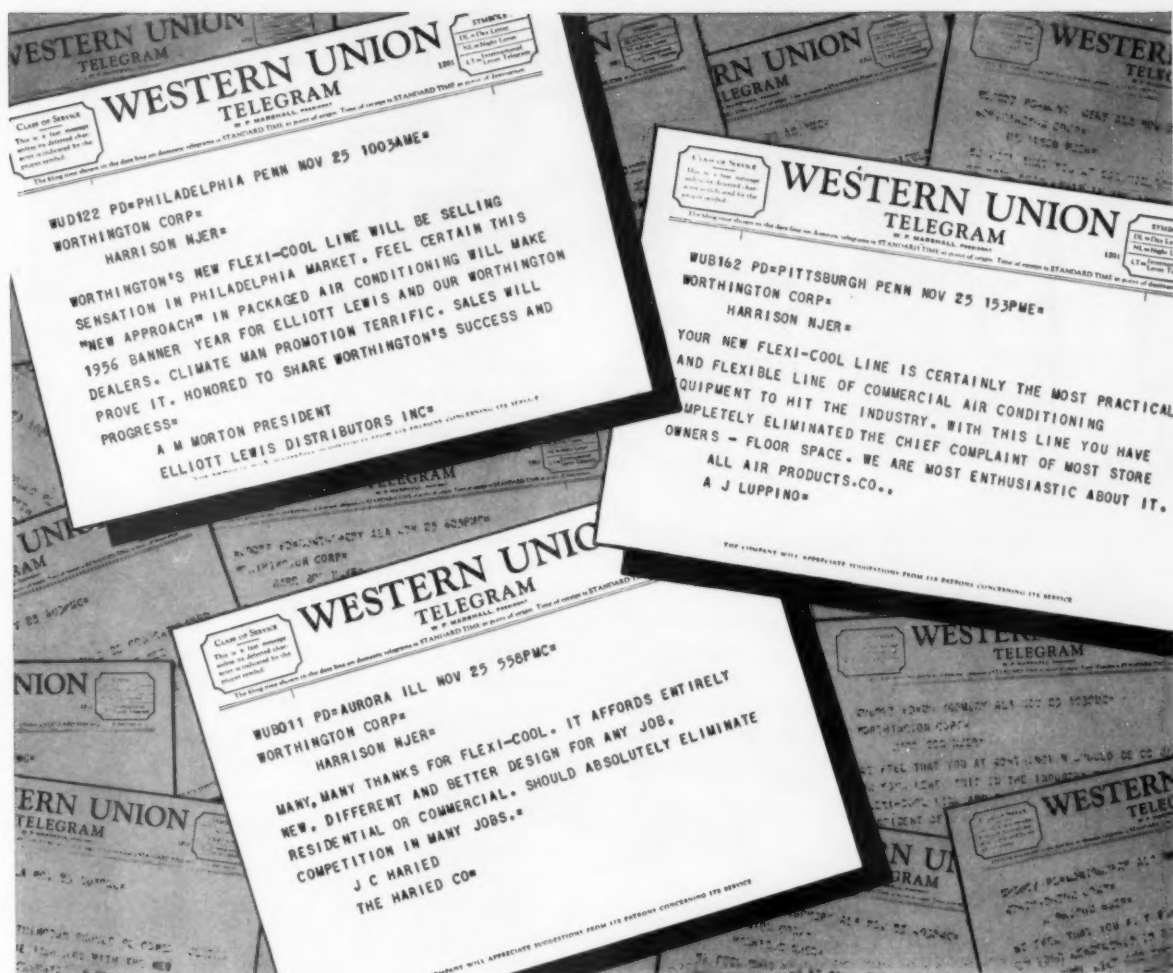
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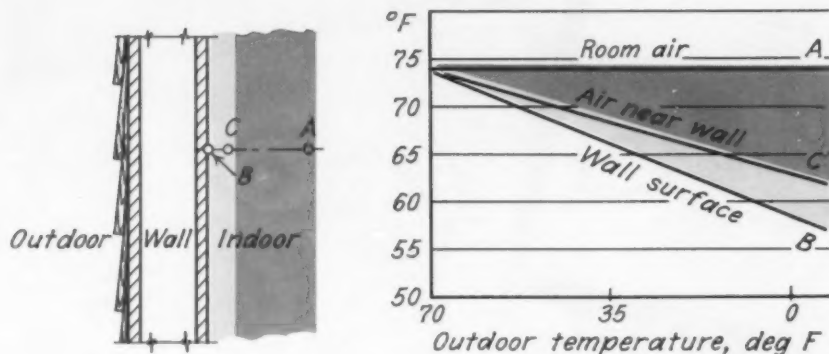
WORTHINGTON



THE BEST FRANCHISE . . . THE MOST COMPLETE LINE

Seek Practical Location for Room Thermostat

(Continued from page 105)



6 UNINSULATED wall produces wide variation in inside temperatures of room air and air near wall. If insulation were added, curves B and C would approach C

lower part of the room, the ceiling air temperature will be lower than when the air is introduced near the upper part of the room.

c) By introducing warm air through registers located below the windows, the curve C for floor air temperatures will be raised.

d) When heat is introduced below the floor, the spread between curves A and C becomes smaller. Heat can be introduced below the floor by several methods, among which are the following:

- 1) Introducing heated air below the floor joists.
- 2) Embedding warm air ducts in a concrete floor slab.
- 3) Introducing heating air into a crawl space below the floor.

In some cases where floor panel heating effects are large, curve C can be higher than curve B.

e) With the use of storm sash, storm doors, and insulated walls, the surfaces of the exposed glass, door, and walls become warmer. The down currents of air from the cool surfaces are warmer and are slowed down, so the floor air does not get as cold in severe weather as when the protective devices are not used.

The typical results shown in Fig. 2 were accomplished by having the room thermostat at the 60 in. level. As might be expected the only level maintained at a constant temperature, irrespective of outdoor temperature, was the 60 in. level. We are assuming, of course, that no thermostat droop effect takes place.

Ceiling Temperatures Fluctuate Rapidly

Suppose we locate the room thermostat at the ceiling level. In this case the thermostat would be surrounded by higher temperature air. Actually the thermostat would have to be set at a temperature higher than 73 F, say about 75 F, in order to obtain a temperature of 73 F at the 60 in. level. The temperatures that would result from the new location of the room thermostat are shown in Fig. 3. It is obvious that if the thermostat were located at the ceiling, the ceiling level would be maintained

at a constant temperature, but all other levels would show a temperature droop. The ceiling location of a room thermostat would have one advantage over other locations, and that would be the large temperature fluctuations that exist near the ceiling, as shown in Fig. 4. The fluctuations near the ceiling during a cycle of burner operation are considerably larger than those near the lower part of the room. The ceiling thermostat is exposed to a wide range of temperatures and would respond more frequently during the day. It should be realized that the advantage of greater sensitivity is more than offset by the fact that the thermostat would have to be continually reset as the weather changed. Apparently, therefore, moving the thermostat toward the ceiling does not improve the droop action described earlier.

Low Level Thermostat Isn't Practical

What would happen if the room thermostat were moved toward the floor level? Aside from the fact that the instrument would be subject to damage and would be unhandy for observation, it would also be exposed to air temperatures that do not change much during the normal operation of the heating plant. At the ceiling, the temperature change during a cycle of burner operation might be 6 to 8 F; at the 60 in. level it might be from 3 to 4 F, while at the floor level the deviations might be as small as 1 F during the same cycle. In other words, locating the thermostat near the floor would be equivalent to deadening its response to temperature change. However, as far as the air temperatures at the different elevations are concerned, the results would be as shown by Fig. 5. That is, the air temperature at the floor level would remain constant irrespective of the weather; the temperature at the 60 in. level would show a negative droop, and the ceiling air temperature would show a much more pronounced negative droop. It becomes apparent that neither the ceiling location nor the floor location of the room thermostat is the ideal location.

(Continued on page 112)

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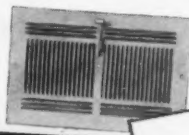
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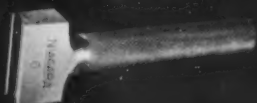
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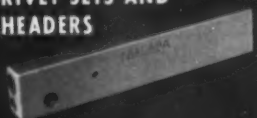
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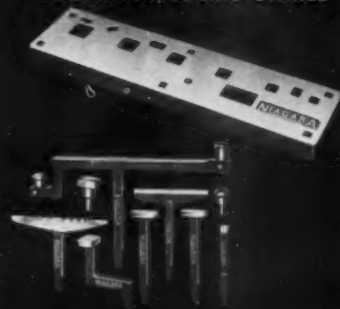
MALLETS AND HAMMERS



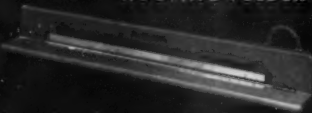
CIRCUMFERENCE RULES & STRAIGHT EDGE



BENCH PLATES AND STAKES



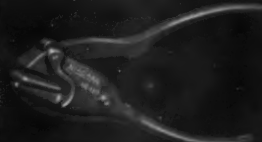
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Whatever the sheet metal job, there's
a Niagara Tool you can
count on to do it easier and better.

Like hundreds of thousands of satisfied sheet
metalworkers, you, too, will like the heft,
feel and ruggedness of these tools . . . and
you're sure to find the *right* one in the size you need.
The next time you need a tool, make it a Niagara.

It'll help you turn out neat, clean,
quality work . . . faster and better. For ease in
ordering, Niagara's *NEW Bulletin 78* is now available.
It's a hand tool guide for sheet metalworkers,
not only illustrating and describing
the long established line, but
also introducing nine new shears and
snips. Get this *New Bulletin 78*
today by writing to:



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NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N.Y.

DISTRICT OFFICES

Buffalo • Cleveland • Detroit • New York • Philadelphia

Dealers in principal U. S. cities and major foreign countries

America's Most Complete Line of Presses, Shears, Press Brakes, Other Machines and Tools for Plate and Sheet Metal Work.

10

Biggest Exclusives in the COOLING-HEATING industry

Help

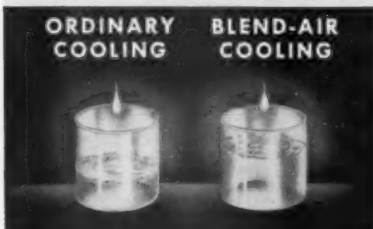
Coleman

dealers sell!

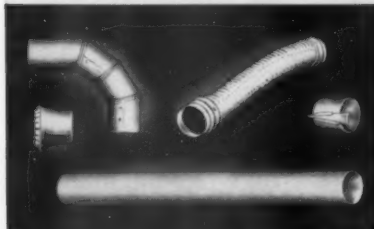
**Compare with
your present line!**

1 The best known brand is the easiest to sell—and more homes heat with Coleman than any other make! In addition, you have the world's finest cooling. Be a Coleman dealer—for extra profits!

nationally advertised in
**LIFE • SATURDAY EVENING POST
HOUSEHOLD • SUNSET
SMALL HOMES GUIDE**



- 4 Best humidity control of any cooling, with Blend-Air distribution system!
5 Superior temperature control—with no drafts! Proved in NAHB Village, Austin, Tex.



- 9 Only completely packaged system on the market. Blenders, ducts, fittings—all precision-made at factory. Reduces labor time... eliminates costly shop work.



Coleman VIT-ROCK GAS WATER HEATERS

Exclusive rock lining can't rust! Backed by 10-year warranty and exclusive \$500 bond... strongest guarantee for any water heater.

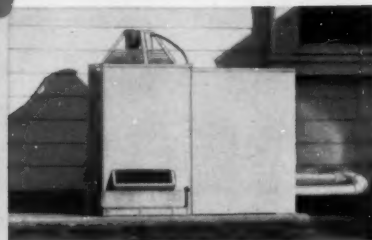
Coleman since 1900—makers of lamps, lanterns, camp stoves, home heating and air conditioning



- 2 Exclusive Blend-Air cooling. Complete line of vertical and plenum coolers, to install with Blend-Air or other forced air furnaces. Add cooling cycle anytime on FHA Title I.



- 6 Exclusive balancing system—tailors cooling to exact needs of any home. Choice of direct expansion or chilled liquid Air-Mist condensers—or new air-cooled units.



- 3 Lowest cost cooling to operate with exclusive Air-Mist evaporative condenser—25% LESS power than average air-cooled system, 62% LESS water than with a cooling tower!



- 7 Exclusive Coleman blenders keep temperatures even floor-to-ceiling and wall-to-wall!
8 Backed by exclusive \$1000 Bond—the strongest guarantee for any heating system!



- 10 Cuts installation time 1/2 to 3/4! 3 1/2-inch ducts fit between studs, no costly alterations needed for modernization jobs. Saves labor and inventory—for extra profits!

MAIL COUPON TODAY FOR COMPLETE INFORMATION

The Coleman Company, Inc.,
Dept. AA-158
Wichita 1, Kansas

Gentlemen: Please send me complete information on Coleman cooling and heating, and your Home Comfort Payment Plan.

Name _____

First Name _____

Address _____

City _____

Zone _____ State _____

**Coleman Home Comfort
Payment Plan—lets you
offer easiest terms in town.
Nothing down—3 years to pay!**

Relocate Thermostat to Exposed Wall?

(Continued from page 108)

Many years ago a great deal of controversy occurred as to the proper location of room thermostats. With the passage of time the solution has been along one of two separate lines:

a) Locate the room thermostat at the 60 in. level. Accept the occurrence of droop action, and correct for it in cold weather by manual adjustment of the thermostat setting.

b) Locate the room thermostat at a level between the 60 in. level and the floor level, say at 30 in. or 48 in. levels. These locations will tend to counteract the temperature droop caused by the thermostat heater coil, and at the same time will not give sluggish response to temperature changes.

Thermostat Locations Affect Response

As stated previously, a room thermostat can control the temperatures only at the thermostat location. Theoretically, the ideal location of a thermostat would be a spot near the middle of the room at about the 30 in. level, or perhaps a spot near a cold exposed wall at the same elevation. If the air temperature at this ideal spot varies at a much greater rate than that at the thermostat location, the thermostat is located in a "dead spot".

Normally the recommended location of a thermostat is on the inside wall behind which are no heat releasing devices, such as wall stacks, steam pipes, or chimney flues. A close examination of a room thermostat will show that between the wall and the temperature sensitive element is an insulating layer. In fact, this element is usually spaced at some distance from the wall so that the full effect of any room air currents can affect the instrument. The case is well ventilated to provide a free flow of room air over the case. The room thermostat usually faces an exposed colder wall so that radiation heat transfer can occur between the case and the cold wall, and thereby make the thermostat more responsive to outdoor temperature changes.

Why Not Outside Wall Location?

Among the questions that arise in connection with thermostat location are the following:

Why are thermostats located on inside walls?

Why not locate them on exposed walls where temperature changes are large?

Would not the glass surface be a suitable location for a room thermostat?

These questions are not as absurd as one might believe. The surface temperature of an exposed wall does change. For example, as shown by the diagrams in Fig. 6, the wall surface becomes cooler as the outdoor temperature becomes lower. Hence, if the room thermostat were located along the exposed wall and were influenced by the

cooler surface as well as by the cooler air near the wall, the result would be that as the weather became cooler the air temperature in the middle of the room would be maintained at a higher level. This is the opposite of the droop action described earlier. It appears therefore that locating the room thermostat on an exposed wall, or on a cold glass surface, would counteract the droop action and at the same time make the thermostat responsive to changes in weather.

There are difficulties connected with this proposal, chief of which is that wall constructions differ so widely. For example, curves *B* and *C* in Fig. 6 are for an uninsulated wall in which the temperatures deviate considerably from curve *A* temperatures for the room air in the middle of the room. If the wall were insulated, curves *B* and *C* would approach curve *A*. In practice, therefore, if the room thermostat were located along the outer wall of an insulated structure, the tendency to overcome droop action might be ideal, but in an uninsulated structure the correction might be far too great. If so, the middle of the room would be much too warm in colder weather, and the homeowner would be forced to cut down on the setting of the thermostat. Similarly, the location of thermostats on window surfaces would be greatly affected by storm sash, sun effects, and frost formation.

The heating dealer should realize that although the inside wall is the usual and preferred location of a room thermostat, it is possible to locate the thermostat either on or near the exposed wall and thereby obtain not only greater sensitivity of the instrument, but also a correction for the droop action. It is assumed of course that the room thermostat would not be covered by draperies, nor be located on a wall which might be heated by the sun. It is also assumed that the wall is well insulated.

Still Room for Improvement

This then is essentially the story of the simple make-and-break contact type thermostat, which has long been the prevailing instrument for domestic heating installations. It is apparent that much study has gone into its development, and that every feature has been the result of research and experience. The most remarkable feature of the instruments has been that millions have been entrusted to not-too-careful homeowners who do not handle them as carefully as the delicate construction demands — yet they work faithfully.

Undoubtedly further developments will take place. The one thing that the thermostat manufacturer should not lose sight of is that the characteristics of the heating plant cannot be ignored. The curves in Figs. 2, 3, 4 and 5 are fairly representative of warm air convection systems, but require modification for warm air panel heating systems. It becomes apparent that the room thermostat of the future will be provided with adjustable features.

SOMETHING

NEW!

**30% THINNER
TWICE AS STRONG
GRIPS LIKE A PIPE WRENCH**

CLEAN, SHARP
TEETH

FLUSH RIVET
NO PROJECTIONS

BOX JOINT ADJUSTABLE TO
4 POSITIONS UP TO 1 1/2" CAPACITY

EXTRA THIN—ONLY 1/2"
AT THICKEST POINT

NON-SLIP CHECKERNUIT
KNURLING

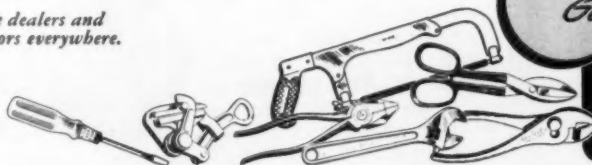
Crescent's No. P210 Utility Plier is completely new ... revolutionary! It's not a "slip-joint" plier and not to be confused with conventional lap-joint "pump" pliers. Its *double-strong* box joint design is absolutely unique and assures a powerful grip like that of a pipe wrench without sideways twist or strain. It will grip flat, square, hex or round objects with powerful leverage.

QUICK, POSITIVE ADJUSTMENT

This cut-away view shows joint construction with its extra generous bearing surface at the arrow point. Adjustment is made by simply "walking" the rivet recess over the bearing point with a pumping action of the handles. Easy, positive, capable of heavy loads.

Handsomely finished in rust-resistant zinc plate. Overall length 9 1/2 inches.

Sold by hardware dealers and industrial distributors everywhere.



CRESCENT TOOLS

Give Wings to Work

*Sign of the Artisan
Symbol of Excellence*

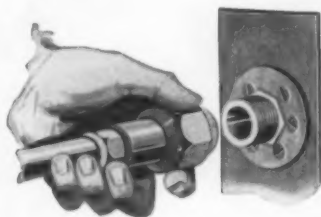
Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK

Revolutionary Rheemaire — that cuts operating up to 95% more



Field Tested

Units were installed last summer in all types and size homes in the hottest sections of the country. All of the units performed perfectly—through some of the longest heat waves in history.



No Refrigeration Mechanic Needed!

All refrigerant line connections in the new Rheemaire unit are equipped with new quick connect fittings. No flare connections, no evacuating or charging the system. Any qualified heating contractor can install it—no refrigeration mechanic needed. Can be installed in less time—at lower cost.

This is big news—big news for builders—for home owners—and even bigger news for heating and air conditioning contractors from coast to coast. For now from Rheem comes the answer to profitable, practical home air conditioning. From Rheem comes a unit that answers every objection to units already on the market—it costs less to buy, less to install, much less to operate, takes up no usable space in the house, and eliminates the noise problem. Just imagine this—competitive home air conditioners on the market cost 50% more to operate than this amazing new unit.

Designed for homes with forced air heat—but adaptable to others—the new Rheem Home Air Conditioner cuts the cost of cooling and almost doubles compressor capacity with a patented, practical, workable way to cool the condenser with a combination of air and water—*without* costly recirculating systems (actually uses much less water than a cooling tower). Easily installed in one- or two-story homes—with or without basements. Just think of the profit possibilities—people who couldn't afford air conditioning before become good prospects, in addition to the thousands of home owners with window units who are already presold on air conditioning.

The new Rheem Home Air Conditioner is ready now. It's been tested and performance-proved by the finest air conditioning engineers, technicians, and consultants in the country, and every unit is performance-bonded for \$1000. So write to Rheem—right away—for the free booklet and complete facts about this amazing new air conditioner, and find out what the new Rheemaire can mean for you.

You can rely on



**RHEEM
MANUFACTURING
COMPANY**

Seattle • Houston • Chicago • South Gate, California • Sparrow's Point, Maryland

a new home air conditioner costs almost in half!

cooling capacity per compressor h.p.



PERFORMANCE BONDED FOR \$1000

Here's complete protection—and positive proof—that the revolutionary new Rheemaire is fully perfected, and thoroughly dependable. So carefully have these new units been tested—that Rheem guarantees payment of \$1000 if the Rheemaire doesn't operate satisfactorily at its rated capacity in any home. It's the only guarantee of its kind that you can offer to air conditioning customers!

**FREE
BOOKLET**

Write to Rheem on your company letterhead for full information about the amazing new Rheemaire. You'll receive an illustrated booklet with all the facts about this new home air conditioner.

Write to Rheem Manufacturing Company,
7600 S. Kedzie, Chicago 29, Illinois. Dept.
AA3.

Engineer Expands Dealer's Scope

**He's a vital cog in the organization who serves
as liaison between the academic world of theory and the
practical elements of installation and servicing**

**By I. Wayne Premier
Manager, Heating Division
Hager-Fox Heating & Refrigeration Co.**

NO DOUBT everyone has a definite opinion on the worth of graduate engineers. My own opinion is that they are well worth their salt.

Engineering gives us a system. It is the art of making practical application of the sciences.

The company I work for has made profitable use of this theory in management. We have four graduates who are heads of four basic departments: new house heating, replacement heating, kitchen and company manager. Having started exclusively in the new house heating field in 1947 and gradually, as we proved our system, expanding to include replacement heating and new and replacement kitchens, our total employment to date is 48. We do a \$700,000 volume annually, of which \$260,000 is in new house heating. Lansing, Mich. boasts of a population of 100,000 with another 90,000 in outlying areas. Our new heating operation has averaged for the past three years over 320 jobs yearly, with an average selling price of \$800. Of these 320 contract jobs, 90 percent are sold to builders. There are few housing projects in Lansing; and the average builder puts up about six houses yearly.

Organized System Cuts Overhead

We are able, through our system, to accomplish this \$260,000 volume with a total of 7 men, one salesman who doubles as overall supervisor, one stacking man, one furnace installer, one layout and duct system man, two sheet metal erection men and a startup and cleanup man.

This discussion was presented by Mr. Premier at the Oil-Heat Institute 33rd annual convention and expresses the views of many industry leaders who employ graduate engineers in managerial positions in the belief that their methods reflect up-to-date and progressive heating techniques

Most builders are wise enough in this day and age to ask for a heating dealer when they start a house, but heating men vary. They might be put into three classifications:

1) The conscientious but overly cautious and foolish dealer who reasons that if a furnace will do the job, he will use the next larger size just to be sure. The same is true with his register and duct sizing. Everything is adequate but it is wasteful and not necessarily the best.

2) The shortsighted heating man who uses equipment that is too small and a duct system which is inadequate in design; as a result, the house doesn't heat well.

3) A dealer who employs a heating engineer who is able to specify an adequate furnace and duct system through an accurate determination of heat loss.

We like to think we are rated as a reliable firm whose engineers' heat loss calculations continually produce adequate systems.

Our system starts with a heating or sales engineer who determines heat loss by a method based on the National Warm Air Heating and Air Conditioning Association manuals. We prefer the perimeter method that takes into consideration the square foot area of the house. From our method of calculating an accurate heat loss, the furnace and duct sizing and equipment selection comes quickly.

Estimates Are Complete

Our registers determine the price per run. We believe this system is superior to that of using a standard price per opening, especially on the larger house. The length of the trunk line also is reflected in our pricing.

These methods build confidence among our customers. They must have confidence because buying heating isn't like buying a new automobile. You can't take it out and drive it around the block — it has to be bought on its reputation and has to live up to it.

The second step in our system is writing a clear cut contract, not just giving a price on scratch paper or the back of an old envelope. Our contract includes in an estimate to a prospective customer the full story of the heating plant and its components.

(Continued on page 120)

THE G-E "VEEP" IN ACTION

How new G-E "Magic Sales-Maker"--a consumer visual sales presentation, popularly called "The Veep"--helps increase sales for G-E Home Heating and Cooling Dealers



How "VEEP" buttoned up sales of 7 furnaces in a small Missouri market



L. C. BOWEN,
General Heating and Cooling
(General Electric Distributor)
St. Joseph, Mo.

Seven furnaces sold through one mailing! That's the profit-heavy job done by a dealer in Brookfield, Missouri. And since there are only about 2,000 homeowners in Brookfield, it took something special to build a record like that! And the Stubblefield Home Improvement Co. used something special—a two-fold attack (1) They mailed out imprinted copies of a G-E mailing piece to practically every home owner in town. (2) They followed up inquiries with the "Veep" visual sales presentation. The results were very impressive in all respects.

Stubblefield's distributor, General Heating and Cooling Co., of St. Joseph, Mo., is sold on this two-prong

approach and is using it. L. C. Bowen, General's wholesale salesman, is masterminding similar strokes throughout the territory. As a result of Bowen coaching, one dealer made a sale the first night he used the "Veep."

Watch for more true sales stories like this one—in future G-E advertisements in this publication. They all teach the same lesson:—the profit-wise home heating and cooling dealer is the one who has climbed on the G-E Bandwagon. Want to join up?



FREE! Sales Secrets That You Can Use.

Exciting success stories by G-E salesmen tell how they broke sales records with the aid of the "Veep." For your copy write GENERAL ELECTRIC, HOME HEATING AND COOLING DEPT. AA-36 BLOOMFIELD, N. J.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

Home Heating and Cooling Dept., Bloomfield, N. J.



Don't get hooked on

If you tighten your belt another notch every time you have to get out the "sharp pencil" to beat the #\$\$"? *price* boys . . . STOP IT!

You can do business and plenty of it . . . multiple housing jobs or single replacements . . . and still make a good, legitimate profit. You *can* . . . if you handle Perfection Regulaire warm air furnaces! Here's why . . .

You sell builders without price cutting . . . because with Perfection's Regulaire, builders get a guaranteed extra profit on every house!

There's no mystery about it. Any house equipped with a Perfection Regulaire furnace brings a higher loan appraisal. That's money in the bank for your builder customers...and

it means *you* aren't asked to shave your bid. What's more, as a Perfection dealer, you, and *only* you, can offer builders a great, new, home selling idea...the "Guaranteed Comfort" home.

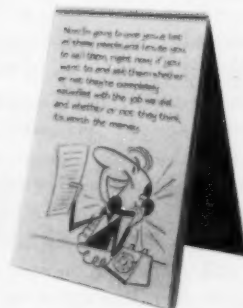


the "SHARP PENCIL"!

You sell the replacement business without
shaving your profit!

Perfection with Regulaire gives you something to sell furnace prospects that the "price" operators can never approach. Regulaire and the 3-stage fire are the best customer bait in the furnace business today. And they provide your customers with the *only* way to full-time comfort . . . constant warm air circulation.

And Perfection has a brand new "kitchen table" sales tool to help you sell it. Be sure to see this new selling help that makes it clear to prospects in no uncertain terms why Perfection's *guaranteed* heating dealers are the ones from whom they should buy. Helps you sell summer cooling, too! Perfection Industries, Division of Hupp Corporation, 7705-A Platt Avenue, Cleveland 4, Ohio.



TALK TO



Perfection

AUTOMATIC HEATING

SUMMER COOLING

Engineer Provides Clear Cut System

(Continued from page 116)

Also, on our printed estimate sheets, we include the statement that we reserve the right to locate the furnace and registers in order to guarantee proper heating and to avoid arguments with the owner who may suddenly decide he wants to place a pingpong table where we plan to set the furnace. Defining the work to be done by others is also important to save unnecessary misunderstanding as to such considerations as who is to do the cutting for the register openings, floor patching, wiring, and when necessary, who is to run the water line for the humidifier.

Does estimate show all this?

- 1) **Furnace make and model number, heating capacity, type of oil or gas burner, type of system (forced air or gravity) and other items such as humidifier, thermostat and type of controls?**
- 2) **Fuel tank if required (whether basement or underground) giving capacity in gallons and including articles such as oil line, fill and vent pipe, gage, fill alarm and oil filter?**
- 3) **The duct system (whether round pipe or graduated rectangular duct using baseboard registers and grilles), number of supply and return air openings to each room and to the basement, and make and size of registers?**

Once this estimate has been given to a customer and he approves it, the original signed copy becomes a contract agreement which is placed in our files.

From the signed contract we make an acknowledgement of order to the customer, a hard copy which becomes a permanent record under which all costs of materials and labor are posted. Upon completion of a job, this hard copy of the contract becomes our permanent service card held on file by our service department.

The third step is systematic field erection. This procedure starts with the field supervisor, who also locates, sizes and marks all register openings for cutting. The cutting is then done either by the builder or by our men according to the contract. We find that on 70 percent of our new heating jobs, the builder will do the cutting. When he does so, he will take particular care when he lays the joist and sets the studding. There is probably nothing more perplexing to a layout man than to find double joists beneath partitions and studding set at random between joists and other places, making an ordinary heating job unnecessarily difficult especially on two story houses. Roughing in register boxes and

grounding return air openings follow. At the same time we rough in an inside oil vent and a thermostat wire.

As to duct installation, instead of taking a number of fittings, some flat sheets and a hand brake to the job as some heating dealers prefer to do, we also have a system for trunk line erection.

In layout and design, our field engineer, who also supervises duct installation, makes a sketch of the basement, measuring the entire house to the nearest $\frac{1}{4}$ in., locating every joist and issuing all instructions pertaining to supply and return air openings and other specifications. From this sketch, a layout drawing is made, using the scale of $\frac{3}{4}$ in. to one foot.

Careful Sizing Cuts Waste

Once all joists and openings have been located on the drawing, sizing of the trunk line begins. Starting at the run farthest from the furnace, the field engineer increases the trunk size with each additional opening all the way to the furnace. The same is done with return air trunk until the drawing is complete. All pieces of duct and each fitting are numbered on the drawing. The whole layout operation, including two trips to the job site (one for measuring and one for checking after the drawing has been made), compiling a complete bill of materials and making a scale drawing, takes about $3\frac{1}{2}$ hr for the average job, but we find that the time saved on duct erection and the minimizing of wasted metal pays for this layout many times over. The waste of metal per job averages from 2 to 4 percent.

From this layout, the bill of materials is taken and passed on to the sheet metal shop for fabrication. They, in turn, number each piece to correspond with the numbered layout. This process eliminates shortages and mistakes in erection.

Installers Can Do Complete Job

Equipment installation follows the same pattern. Our furnace installers also are licensed to do class B wiring, so that one man does a complete job including delivery of the furnace and basement tank, assembling and setting the furnace in place with smoke pipe and oil line, wiring a furnace and thermostat, setting the oil tank and doing any necessary piping.

One good man with a little experience, who is able to make every move count, can set three furnaces and three basement oil tanks in two 8 hour days. Following the furnace installation is setting up of the air distribution system and its components and general cleanup and startup of equipment. The thoroughness of the original startup is responsible for fewer call backs.

Revolutionary New Gas Valve Design!

HONEYWELL'S

V-80

SILENT GAS VALVE

Combines the simplicity of the solenoid valve with the silence of the diaphragm valve . . . plus many additional new advantages of its own

Featuring...

the plunger which acts
SILENTLY
in a cushion
of oil

● terminal connections . . . for faster wiring

● electrical parts out of the gas stream . . . meets S. U. R. requirements

● operating parts out of the gas stream . . . eliminates periodic servicing

● can be mounted in any position in a horizontal pipe run . . . solves space problems

● can be used with all gases and all types of equipment



● all working parts permanently lubricated and sealed . . . provides long, trouble-free life

● no bleed connections required . . . cuts installation costs

● small compact size . . . installs out of the way

● self-aligning soft disc valve . . . assures tight close-off

● inclined self-cleaning valve seat . . . eliminates periodic servicing

When you specify the Honeywell V-80, you're specifying the best in gas valves!

For complete information, call your
local Honeywell office—or write
Minneapolis-Honeywell, Dept. 2749,
Minneapolis 8, Minnesota.

MINNEAPOLIS
Honeywell

First in Controls

Completely New and Different!

HONEYWELL'S

V-80

SILENT GAS VALVE

AGA and UL LISTED
Conforms to utility requirements



ACTUAL SIZE



IT'S SILENT
eliminates home owners'
complaints about
noisy valves



IT'S LOW IN COST
priced only
slightly above
solenoid valves



**It eliminates
PERIODIC SERVICE**
because the operating parts
are out of the gas stream

Here's the GAS VALVE that sets a new standard for the industry!



turn to the next page and see the V80's advanced new design!



SERIES OF PARABOLIC ARCHES typify vaulted roof construction of the Lambert-St. Louis municipal airport terminal building where roof sections are covered by sheet copper

Sheet Copper Sets the Pace in Airport Roofing Design

Many eyes are on the new airport terminal building at St. Louis, dedicated March 10, where a huge roofing job employed sheet copper for a barrel vaulted design using standard batten seam construction

THE DESIGN AND construction of a new airport terminal building at Lambert-St. Louis municipal airport has created much interest among American and foreign airport commissions as a possible model for other airport expansion and modernization projects.

The new terminal building provides three important facilities demanded by a modern air-minded public — convenience, comfort and efficiency. The external appearance is enhanced by a barrel-vaulted roof with a sheet copper skin. The roof is a clear span divided into three sections each comprised of intersecting barrel-vaulted or parabolic curve elements which make six intersecting dormer arches.

Job Ranks Among Largest

The structure is 415 ft in length and 120 ft wide; the vaulted ceilings are 32 ft high. Each of the three roof sections is 120 × 120 ft on the flat; allowing for curves, arches and overhang, engineers estimate the actual area to be approximately 72,000 sq ft.

The sheet copper application, laid over a slab founda-

(Continued on page 126)

By James F. Redding
Copper & Brass Research Assn.



HAMMERING DOWN THE BATTEN SEAM to set copper panel in place are Foreman Fred Dent and Anthony Andrews of Mound Rose Cornice & Sheet Metal Works

Now!

**a size to fit your
needs!**

the **ROUND OAK**

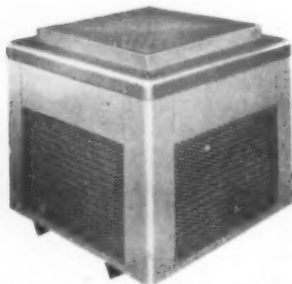
1956 VERSION OF THE FAMOUS

clima-twin *Aire*

waterless air conditioner

For your customer with the *special* problem, the "Clima-Twin-Aire is versatile, tailor-made solution . . . *using no water.*

Completely separated from the evaporator, the condenser may go about anywhere . . . garage, outside in a concealing group of shrubs, in its own louvered house. All moving parts are outside!



Condensers come in 2, 3 or 5 H. P. sizes. The evaporator packages are equally versatile, designed for vertical or horizontal application . . . in the attic . . . underneath or above the furnace. And then, of course, there's the famous "Clima-Twins," matching cooling and heating units.



Gentlemen: Please send me IMMEDIATELY full information on Round Oak air conditioning.

Name _____

Firm _____

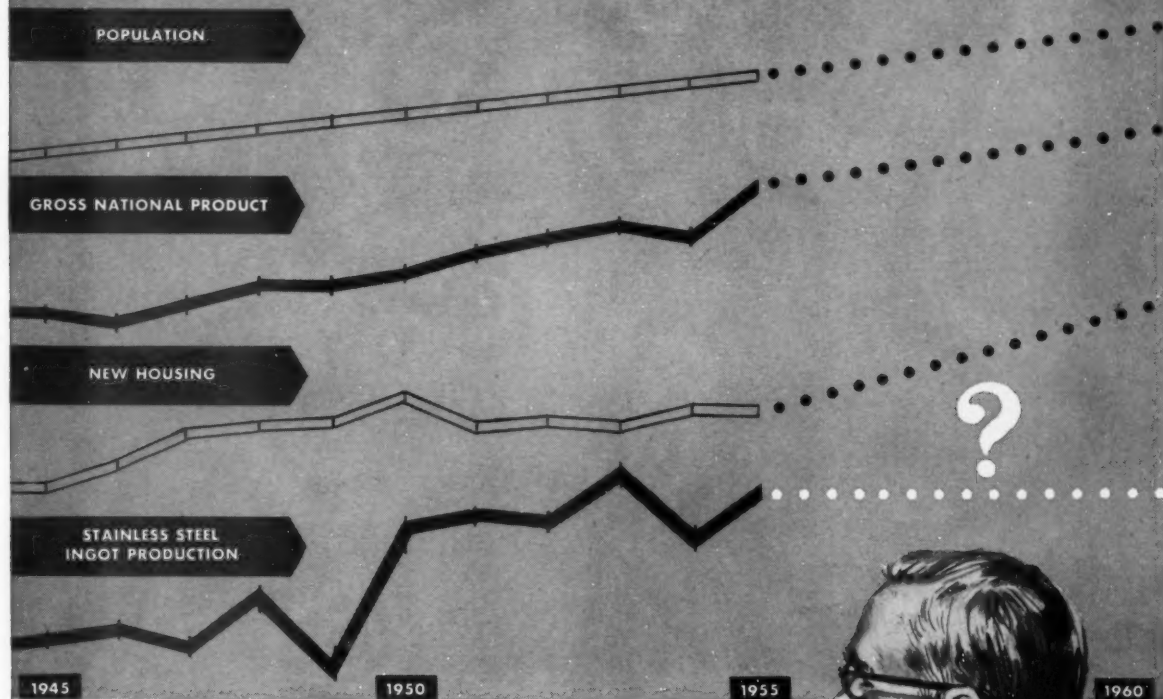
Address _____

City _____

State _____

ROUND OAK CO., INC.
DOWAGIAC, MICHIGAN

PULSE OF BUSINESS



Can you grow with your markets?

As the national economy continues to expand so also will your markets. For you to grow with these markets there must be a corresponding increase in your supply of raw material. Right now, as in the case of stainless steel, this presents a problem.

If stainless steel sheet plays an important part in the manufacture of your product, you are more than likely accustomed to specifying Type 302, 18-8 chrome nickel grade. Due to government stockpiling of critical and strategic nickel, this particular grade is not as readily available as before and no immediate increase in supply can be expected. How then, if you are to increase your participation in this growth, can you overcome your problem?

THERE IS A WAY—another grade of stainless, namely Type 430, *is* readily available. Since it is a straight chromium stainless, it is not affected by the nickel shortage. Type 430 is by no means new and untried as it has been used extensively in strip form by the automotive and other industries. Over 30% of all stainless made in this country is the non-nickel bearing Type 430 produced primarily as strip and not as sheet.

Beside availability, the substantial savings in base price between 430 and the 18-8 grade is also of significant importance in these days of high prices. The amount you are presently spending for your stainless steel supply will buy considerably more stainless in the 430 grade, particularly in our MicroRold sheets.



When applied properly in applications where extreme corrosion resistance is not a factor, Type 430 has all the desired qualities of beauty, strength, corrosion resistance, long life and low maintenance. The steel industry estimates that 50% of all stainless steel sheet applications could satisfactorily use Type 430 as an economical and practical material. If the product is cleaned regularly 430 stainless can be used in any application. Why don't you investigate the possibilities of Type 430 for your product?

Washington Steel
Corporation

2-A WOODLAND AVE., WASHINGTON, PA.



Send for your copy, "Care
and Use of 430 Stainless"

Sheet Copper Solves Curved Roof Problems

(Continued from page 123)



BEAMS OF 24 oz cold rolled copper are installed in the valleys of a curved roof section. Copper proved particularly adaptable to this application which required following the curve of the roof without buckling or distorting

tion shell which is the base of the roof, is most interesting. Erection of the vaulted roof began with construction of a wood form, upon which the concrete slab shell was poured to a thickness of $4\frac{1}{2}$ in. A 3 in. layer of glass fiber insulation was laid over the shell. The roof deck over the layer of insulation was formed from 1 in. plywood. Sheet copper roofing was applied to this wooden deck to provide for minimum friction of the sheet copper when it contracts and expands.

Batten Seam Construction Used

The sheet copper roofing job by Mound Rose Cornice & Sheet Metal Works of St. Louis, under the direction of President Louis Schwartz, is said to rank as one of the major roofing installations in the Midwest in recent times. The structure required about 120,000 lb of cold rolled sheet copper. Standard batten seam construction was employed to meet the structural requirements.

"The main panels are of 20 oz cold rolled copper in 8 ft \times 36 in. sheets," explains Mr. Schwartz. "Turned up at the battens and allowing for lock edge, these sheets finish up into 7 ft 8 in. \times $31\frac{3}{4}$ in. panels.

"The battens were dovetailed inward at the base to per-

mit expansion and contraction in all directions," he continued. "The batten caps are 24 oz sheet copper which are locked to the sheets. The valleys and beam covers are also 24 oz sheet copper. Due to the curve and slope, provisions had to be made to lock the roof beam covers and valleys tightly to the roof sheets and follow the contour of the beam.

Cold Rolled Sheets Answer Needs

"Cold rolled sheet copper was highly satisfactory for this particular roofing installation because it follows the roof curve without buckling or distortion.

"The barrel-vaulted roof wasn't much of a problem for us, in spite of its unusual characteristics," Mr. Schwartz points out, "because we met many of the problems in recent installations of sheet copper roofs and domes similar to this one, on the old St. Louis courthouse, on the Jefferson national memorial, and on the United Hebrew temple in St. Louis. We also encountered some similar problems in our application of sheet copper on the Missouri Delta Hospital roof in Poplar Bluff, Mo.

(Continued on page 130)

Do you know the sales and profit facts about usAIRco Distributorships?

*Find out how young, growing,
cooperative management will give you a
"two-sided partnership"!*

If you are thinking of going into air conditioning, or dissatisfied with your present source . . . it will pay to get the facts about a usAIRco distributorship

The only distributor program built with *you* in mind, assures flexibility to meet local conditions . . . gives a closeness of cooperation from the factory you will find nowhere else!

usAIRco manufactures a *complete* line of air conditioning equipment for every type of job.

Over 30 years' progress in this field guarantees unsurpassed quality . . . makes possible our liberal 5-year warranty and service allowance.

Inventory problems are eliminated through usAIRco's Warehouse Plan and Finance Plan, which make merchandise available *when you need it*, without tying up capital. Aggressive advertising and dealer aid program helps you to keep the sales ball rolling.

Write today for complete details!

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COMPLETE RESIDENTIAL LINE



"ADDS-ON" YEAR 'ROUND AIR-COOLED

**UNITED STATES
AIR CONDITIONING CORPORATION**
MINNEAPOLIS 14, MINNESOTA

usAIRco

R. John Craig, Manager, Packaged Refrigeration Division
United States Air Conditioning Corporation
Minneapolis 14, Minnesota

I would like the complete story on the
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Address _____

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By _____

There's Modern Beauty Plus Greater Utility in This New Round Thermostat



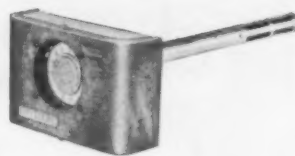
- Easy-to-read double dial
- Adjustable heat anticipation
- Easy lever adjustment
- Enclosed snap action switch
- No leveling necessary

The new Crise Round Thermostat has graceful contours and a removable cover that can be painted to match any room setting. Separate scales are provided for both room temperature and temperature setting. A completely enclosed precision snap action switch makes or breaks the circuit—requires no leveling to install. The TR125 Crise Round Thermostat is designed for use on low voltage circuits. For additional information and price schedule write us.

ACRO
MANUFACTURING COMPANY
CONTROLS DIVISION

COLUMBUS 16, OHIO

*There's a Dependable
Crise Control for
Every Application*



CRISE FAN AND LIMIT CONTROLS

The highest quality in fan, limit and combination controls for automatic heat. All feature clear lucite windows, easy-to-read dials.

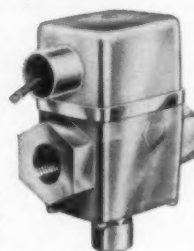


CRISE THERMOSTATS

There's modern beauty plus the greater utility of a double scale in this new round thermostat. The removable cover can be painted to match any wall.

CRISE SOLENOID GAS VALVES

Built for use with all types of gases and gas-fired heating equipment. Designed for whisper-quiet operation, long life.

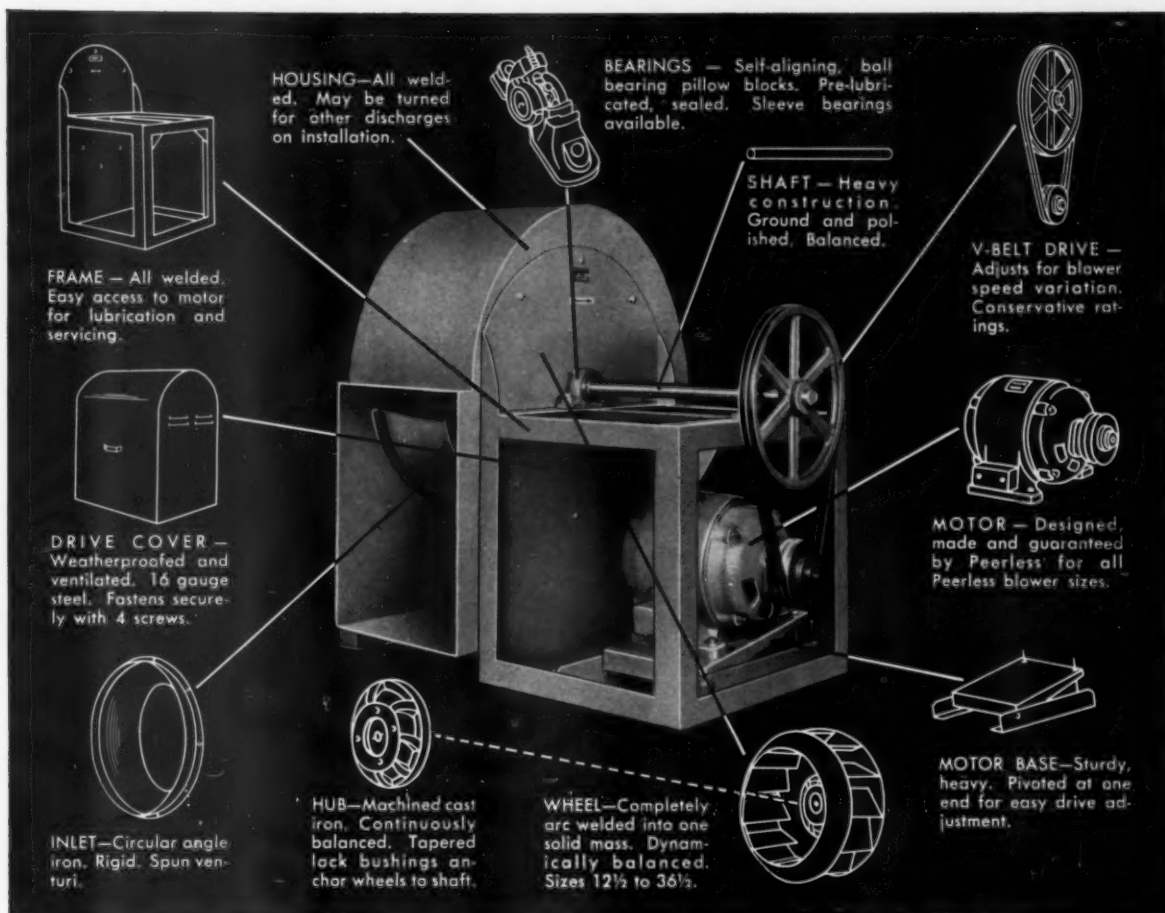


CRISE ZONE CONTROLS

Each Crise Zonetrol is a complete unit. No auxiliary switch, power box, or transformer is re-



quired. It's the economical way to zone heating and air conditioning systems.



Specially Engineered, Compatible Blower Components . . . The Reason For Outstanding Peerless Performance and Quality!



• This is the Peerless Backward Curve Blower, one of the workhorses of the dependable Peerless line. Like all Peerless units, it's designed, engineered and manufactured completely at Peerless . . . motor and all. It is this complete control from components to finished unit which enables us to unconditionally guarantee every fan and blower we make. Each component works in perfect harmony with the other to give quiet, trouble-free performance.

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Peerless Backward Curve Blowers can be specified with confidence. They are thoroughly tested according to test codes. They meet PFMA, NAFM and NEMA standards. Scores of them are operating in schools, hospitals, other buildings and government installations all over the nation. We are used to producing to customer or government specifications.

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ADDRESS.....

Roof Design Provides for Future Growth

(Continued from page 126)



V-SHAPED skylight sections in metal frames wedge between each connecting section of airport roof.

"A minimum of soldering was done in connection with the airport terminal installation. All seams were locked in the direction of water flow, and the only soldering was at the apex of the roof where the copper sheets of the different curves joined in the valleys and gutters.

"Each roof is drained at four points, and provisions for handling large quantities of water were made by fabricating and installing large funnel shaped drains of 32 oz cold rolled sheet copper which was brazed to heavy machined brass ferrules.

"The face member of the eaves presented a problem in that it followed the curves of the roof as well as sloping outward. So we covered the roof side and top with locked copper sheets and anchored them to a heavy cleat connected to a reglet embedded in the concrete," Mr. Schwartz recalls.

Additional Sections Provide for Growth

On the airport job, provision was made for future expansion of the terminal facilities by erection of two addi-

tional sections of the same type, making a total of nine roof sections with a sheet copper covering.

The terminal building interior is on three levels which are served by escalators. The main concourse has wide glass areas to provide a view of the entire airfield from the interior. Dining rooms, lunch bars, lounges and other public rooms are located convenient to the passenger promenade. Air travel offices are grouped and baggage and supply sections are located at convenient points for their purposes.

Total cost for the project was \$4,500,000.

Other principals in the construction work were L & R Construction Co., general contractors; Minoru Yamasaki of Hellmuth, Yamasaki, Leinweber, Inc., who designed the terminal building; Conway B. Briscoe, city director of public utilities; and Roberts & Schaefer Co., consultants, who contributed advice in designing the roof's shell. Landrum & Brown, airport consultants, assisted the designers and airport commission in the early planning stages.

Many Sickness Benefits Are Tax Exempt

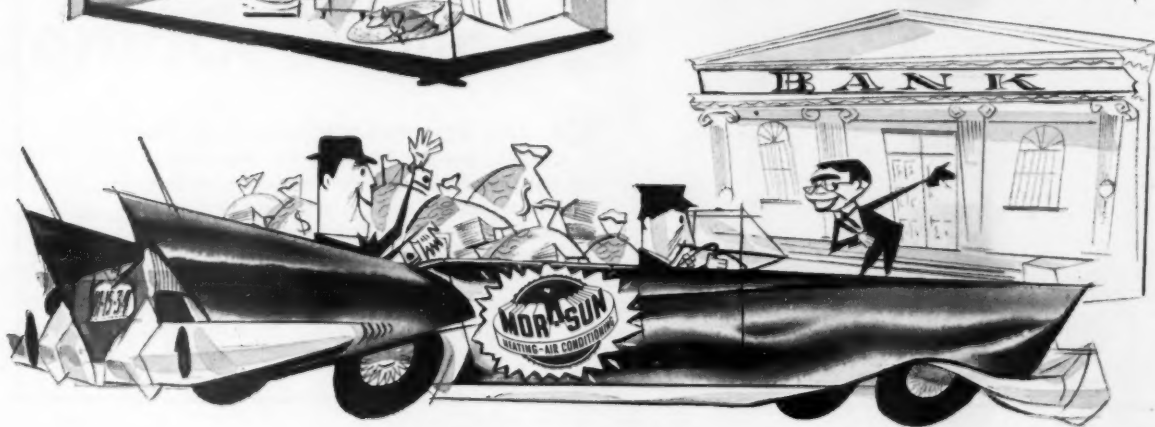
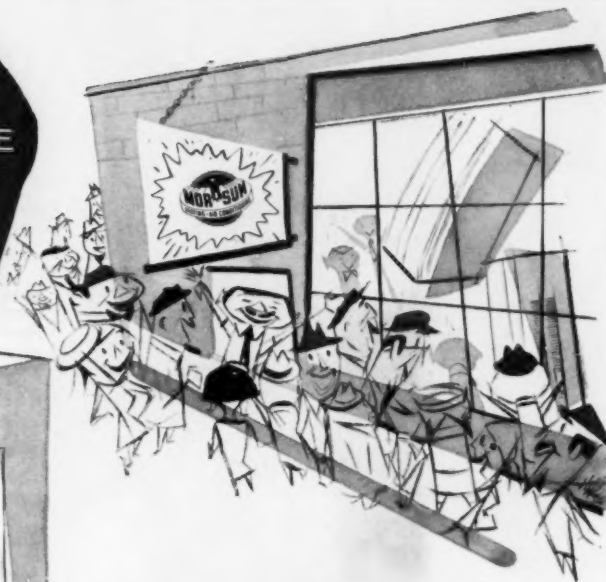
UNDER THE PRESENT tax law, according to the American Institute of Accountants, payments from your company to employees for treatment of sickness or injury are not taxed as income of the employees. If the company has a plan for continuing all or part of an employee's pay while he is absent for sickness or injury, limited amounts of this "sick pay" are also tax exempt.

This applies whether the payments are made by the company or by an insurance company. In the case of an illness requiring

hospitalization even for one day during the course of the sickness, or in the case of any injury, the first \$100 per week of payments are tax free. In the case of illness which does not require as much as a day's hospitalization, the exemption begins after the first week of absence.

No great formality is required concerning the plan but it would be well to explain it to the employees and keep appropriate records of the amounts paid.

- NEW BUSINESS
- CUSTOMER ACCEPTANCE
AND SATISFACTION
- BIGGER PROFITS



*You get so much more
... with*

MOR-SUN

HEATING AND AIR CONDITIONING

Here are the reasons YOU should be a Mor-Sun Dealer...

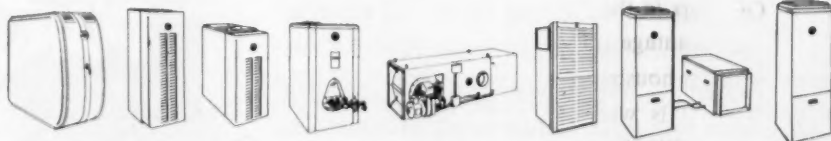
A COMPLETE LINE of warm air heating and air conditioning equipment.
QUALITY DESIGN AND CONSTRUCTION that ensures customer satisfaction.
THE RIGHT SIZE...THE RIGHT PRICE for every home heating and cooling market.
NATIONWIDE DISTRIBUTION with immediate delivery from local stocks.

SALES TRAINING sponsored by Mor-Sun—practical, professional "how-to-sell" instruction.
NATIONAL ADVERTISING that pre-sells Mor-Sun, builds customer recognition and acceptance, boosts your business and profits.

SALES PROMOTIONAL HELPS, selling tools to help you interest the prospect and close the sale.
CO-OP ADVERTISING PLAN for your local use—newspaper, radio, TV, and other approved media.

FOR ALL THE DETAILS of one of the soundest business opportunities open to heating dealers, see your nearest Mor-Sun Distributor—he's listed in the Yellow Pages of your telephone directory—or write directly to: Mor-Sun Furnace Division, Morrison Steel Products, Inc., 609 Amherst Street, Buffalo 7, N.Y.

THE COMPLETE LINE



• There's a Mor-Sun Warm Air Furnace and Air Conditioner for every home heating and cooling requirement... the right size... the right price... for new construction or modernization.

Also manufacturers of Morrison Roly-Door Steel Sectional Overhead Doors and Morrison Service Bodies



1 WATERPROOF AND ACIDPROOF . . . holds back sludge-forming water that clogs nozzles.

2 .0002" FILTRATION PurOlator element is uniformly dense, the only medium to provide micronic filtration to .0002".

3 NO CHANNELING Uniform density eliminates "soft spots" for oil to break through and minimize filtration.

4 NO DISTORTION PurOlator's Micronic Element will not shrink, distort, stretch, flake or deteriorate when oil passes through. It will not wear.

5 FITS MOST HOUSINGS The necessary gaskets for installation in other housings are included in the PurOlator package, for the cost of the element.

6 ONE SIZE FITS ALL JOBS PurOlator offers a standard one-sized unit which is physically among the smallest elements available, yet has a capacity three times the largest element sold for domestic burners. This reduces stock and inventory problems.

Only PurOlator filters offer all 6 advantages

The PurOlator PF-2002 prevents nozzle clogging and cuts down fuel pump wear. No other oilburner filter offers all of the six advantages explained above to assure this efficiency of operation. That's why the PurOlator PF-2002 Oil Burner Fuel Line Filter has become the most widely used by original equipment manufacturers in the combustion industry. There's no advantage in settling for less. It fits most popular housings, and, with adapters, this one element is widely interchangeable — cutting down your stock and inventory problems.

Write for all the information you need, including prices, to: PurOlator Products, Inc., Rahway, New Jersey, Dept. OB4-330.

Dealers and Jobbers! A few valuable dealer and jobber territories are still available. One may be near you. For confidential jobber and dealer information, send us a letter on your company letter-head.



CRANE

How to get two sales out of a single remodeling job

Guess how much money will be spent on remodeling this year. Five billion? Eight? Ten? Some experts predict even more.

You can get big remodeling profits yourself with Crane's Year 'Round Air Conditioner. That's the air conditioner that lets you get *two* sales out of a single remodeling job.

Here's how. If a prospect doesn't want to put out the money for the complete Crane Year 'Round unit in one lump sum—sell the heating section now, and the cooling later. It's made so that the refrigeration unit can be slipped in . . . anytime.

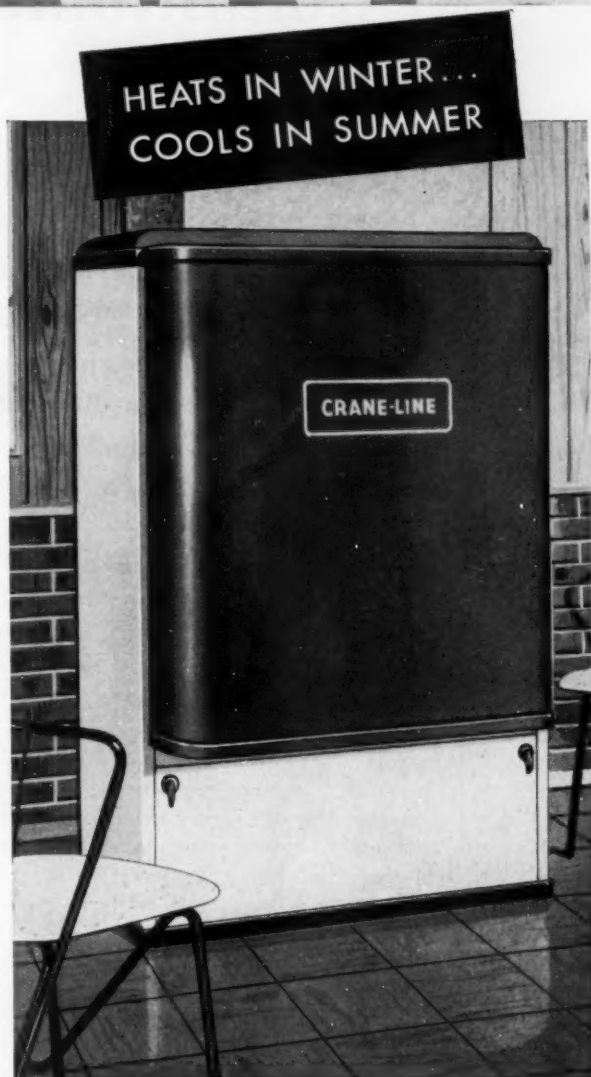
Either way, you've got terrific selling features. This Crane product is pre-assembled. It's easily installed. It's compact enough to fit in the *snuggest* spot. Cooling system is hermetically sealed. Built-in damper gives simple heating-cooling change-over.

Crane offers a complete line of Year 'Round Units competitively priced—in both Counterflow and Hi-Boy models. Gas and oil fired—air or water cooled, two-, three- and five-ton sizes.

Your Crane Branch or Crane Wholesaler can give you complete details. Why don't you call right now?

CRANE CO.

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ACTION



What's behind the remodeling boom? Two things.

ACTION—a civic agency publicizing the need for remodeling.

OPERATION HOME IMPROVEMENT—a privately financed (200 million dollar) promotion for home improvement. Together, they're building a gigantic remodeling market for you.

Home Builders Hear Air Conditioning Trends

- Reading of Air Conditioned Village report is delayed to allow time to coordinate tabulated information
- Central cooling reported to be moving out of the luxury category as people recognize its advantages
- Building orientation, heat loads, noise control and government mortgage specification discussions further the cause of cooperation between building and air conditioning industries

THE LONG AWAITED report on the findings at the Air Conditioned Test Village in Austin, Texas was to have been presented at the 12th annual convention of the National Association of Home Builders. However, at the time of the convention session on residential air conditioning, Chairman Ned A. Cole stated that the report had not been passed by the committee and could not be made available until another meeting had taken place to coordinate the information obtained at the research village. Mr. Cole stated that the change in policy from seasonal evaluation of data to an annual evaluation for the period from October 1, 1954 to October 1, 1955 delayed reading of the report. He indicated that extension of the program to a two year test project would enable the men doing the research and evaluation to obtain more facts and figures to verify their analyses. He also expressed the hope that additional information might be released during the late spring or early summer of 1956.

In reporting some of the facts passed by the air conditioning committee, Mr. Cole said the average

cost for heating and cooling each of the 21 houses in the village was \$112.93 for one year, or \$9.41 a month. Other information presented by Mr. Cole dealt with the solution of noise problems involving air conditioning equipment and revealed that the air conditioned village project was responsible for many builders changing their specifications to provide more substantial supports for machinery so noise levels might be kept below the 40 decibel level.

Cooling Becomes Necessity

On the same program were Herbert T. Gilkey, technical director, National Warm Air Heating and Air Conditioning Association; George S. Jones, Jr., managing director, Air-Conditioning and Refrigeration Institute; Fred W. McGhan, Architectural Standards Div., Federal Housing Administration; and Charles I. Hopkins, director, Construction and Valuation Service, Veterans Administration. Mr. Gilkey advised that the growing demand for central cooling systems has changed the thinking of many people who at one time con-

sidered a central residential cooling system a luxury. Recent interviews now show that many more people are thinking of it as a necessity.

To meet the comfort requirements of customers Mr. Gilkey cautioned those specifying equipment to make a careful estimate for each installation. He reminded the audience that building orientation is extremely important in selecting equipment. The same building could have four different heat loads based upon the relationship between glass exposure and the solar intensity load.

The use of an arbitrary figure of 15 percent was recommended for selecting equipment capacity to match the maximum heat load. Any figure falling below or above this safety factor calls for the next size equipment offered by a manufacturer.

Cooling Is Selling Tool

The value of summer cooling equipment as a merchandising tool to sell more houses was pointed out by George S. Jones, Jr., who estimated that 125,000 homes were air conditioned with heating and cooling equipment during 1955 and that the figure should reach approximately 200,000 in 1956.

The Federal Housing Administration and the Veterans Administration are favorable to approving homes for guaranteed mortgages when central air conditioning has been specified according to the recommendations made in the manuals published by NWAHACA, according to Fred W. McGhan and Charles I. Hopkins, who also appeared on the panel program.

*Back of Airtemp
is Chrysler—
the greatest
name in engineering!*

Chrysler Airtemp



**...and AIRTEMP
leans over backwards
to help you make
more profit in
Heating and Cooling!**


From your Airtemp Distributor *and* Airtemp, you can expect and get assistance. Every step of the way to success as an Airtemp Dealer there is help available in financing, merchandising, application, installation and service.

Airtemp is *the* profitable franchise in Heating and Cooling. Get all the facts and you'll see that your profit opportunity is with Airtemp. Write Department AA-3, Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.



**THE FORWARD LOOK IN
HEATING • AIR CONDITIONING FOR HOMES, BUSINESS, INDUSTRY**





why
take the
blame...

for inadequate insulation?



cut down customer complaints by recommending an application of

SILVERCOTE®

REFLECTIVE INSULATION

Much of the pain of customer complaints can be ended before it starts—before you even start to make an air conditioning installation in a residential or commercial building.

Make sure the building is properly insulated for air conditioning. Recommend an application of Silvercote Reflective Insulation. It reduces summer indoor temperatures up to 10°, taking much of the back-breaking heat load off of the air conditioning equipment. And it saves fuel warmth in winter, too.

Silvercote is a natural insulation for the air conditioning age. Fifteen layers of millions of tiny aluminum flakes, bonded to a heavyweight sheet, give it the heat reflective power of a million miniature mirrors. Moreover it's a natural "breather" sheet. Available on rolls, or as a facing on brand name blanket insulations. Write for our free booklet and get all the important facts on Silvercote.

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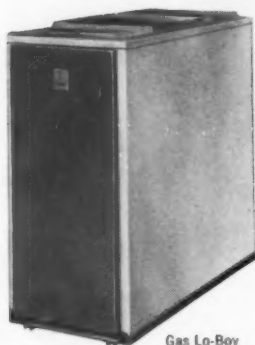
Please send your FREE booklet with complete information on
SILVERCOTE Reflective Insulation.

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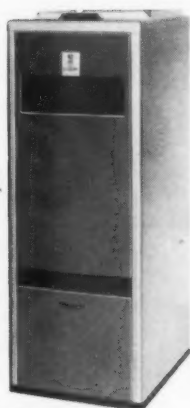
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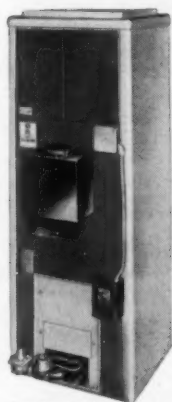
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Gas Lo-Boy



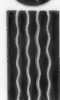
Gas "Lo" Hi-Boy



Gas Counterflo



*The Finest in Home Heating
since 1842...complete cooling, too.*



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**INTERNATIONAL
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Can you satisfy and sell every customer with International Economy? You bet your boots you can! Economy gives you the furnace models, features, types and ratings to meet every customer's heating and cooling needs exactly. Further, you can cash in on Economy's long experience — 114 years of proven leadership in building heating equipment. What customer could say anything but YES to heat that's exactly tailored to his needs — heat that's properly installed by you — heat that's low in cost to buy and saves him money for years?

Economy definitely holds the answer to more heating and cooling profits for you. Interested in talking about it?

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NEW ECONOMY GAS FURNACES

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- 24 MODELS
- 60,000 TO 250,000 BTU. INPUT
- WIDEST CHOICE OF MODELS — HI-BOYS, LO-BOYS, COUNTERFLO, GRAVITY, SUSPENDED, GAS CONVERSION BURNERS, ETC.
- ASSEMBLED AND NOT ASSEMBLED MODELS



DOUBLE REGISTERS fed from same overhead duct take advantage of characteristics of moving air to supply comfort in summer (high wall register) and winter (low wall location)



RAISED FLOOR in closet permits the supply and return duct to pass under the first step of the stairway on its way back to the year 'round conditioner

Schott's Alley Face Lifting Tests Contractor's Skill

... in overcoming space limitations involved
in the installation of year 'round air conditioning
systems in these historic dwellings

IN THE SHADOW of the nation's Capitol, where history has left its mark many times, lies the fabulous block-long Schott's Alley. One building with 12 two story dwellings fills one side of the "alley." These old dwellings have seen good times and bad, originally providing residence for servants of early Washington families, then shelter for freed slaves, and finally housing for low income families as the neighborhood began to show the effects of a changing way of life. Under the surfaces of the weathered brick exteriors lay a type of architecture familiar to that of old New Orleans. To modernize these dwellings and convert them into modern apartment buildings while retaining the historic flavor of the exterior walls it was necessary to call upon the ingenuity of every craft in the building trade. The warm air heating firm which installed the year 'round air conditioning system is Combustioneer Corp. D. E. Shytle, general manager and vice president, says his two greatest problems were finding equipment that would fit into the small amount of floor space allocated to the equip-

ment and determining the location of ductwork.

The building is set on a 12 in. concrete slab and has a flat roof. The original dwelling units did not contain chimneys; thus the location of the heating and cooling unit was restricted to a place where a prefabricated chimney could be installed in a corner of one of the partition walls and then plastered over. The space required for this necessity was not to exceed a maximum of 1 sq ft because of the small room area.

Each year 'round unit was located in a different place in the various apartments; thus different types of packaged units were required to meet the individual limitations. Where headroom was available but floor area at a minimum, the elevated furnace with a drawer compartment beneath it filled the bill, but where headroom was at a minimum, floor space was used for a vertical package arrangement. Both types of installation left little room for installing the duct fittings.

(Continued on page 142)

Exclusive Selling Features of the *Thermostyled* *Classic* by **DETROIT CONTROLS**



CA-412

BEAUTIFUL STYLING . . . EYE-LEVEL READING

As new as tomorrow . . . that's what furnace manufacturers and dealers said when they first saw the Classic . . . and you'll agree with them the first time you install one of these smartly designed thermostats on your next job.

The satin-gold case and black dial with its easy-to-read numerals complements the color scheme of any room.

But enough about its beauty . . . that's obvious . . . what you want to know is how much does it cost and how easily it can be installed.

Yes, it looks like more money but it costs no more than other makes . . . and that's important to you, but equally as important is the fact that the Classic's wiring system is standard 2-wire low voltage—and it will practically replace any thermostat without wiring changes!

Now, add up these exclusive selling features of the Classic and compare them with other thermostats of any shape, size or style and we're sure you'll want to find out more about it by calling one of the Detroit Controls representatives in your district or writing us today for full information.

TIMED CYCLING Ends "HOT" and "COLD" Periods

Here is another Detroit Controls exclusive selling feature . . . Timed Cycling . . . the device that actually anticipates the heating needs of the home . . . controls room temperature within a fraction of a degree

. . . provides the ultimate in heating comfort by eliminating over and under heating. Find out more about Classic, the "self-governing" thermostat, by writing for descriptive folder Form 1687 today.

YOU LIVE BETTER WITH **DETROIT CONTROLS**

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5900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of **AMERICAN-STANDARD**



Representatives in Principal Cities • Canadian Representatives:
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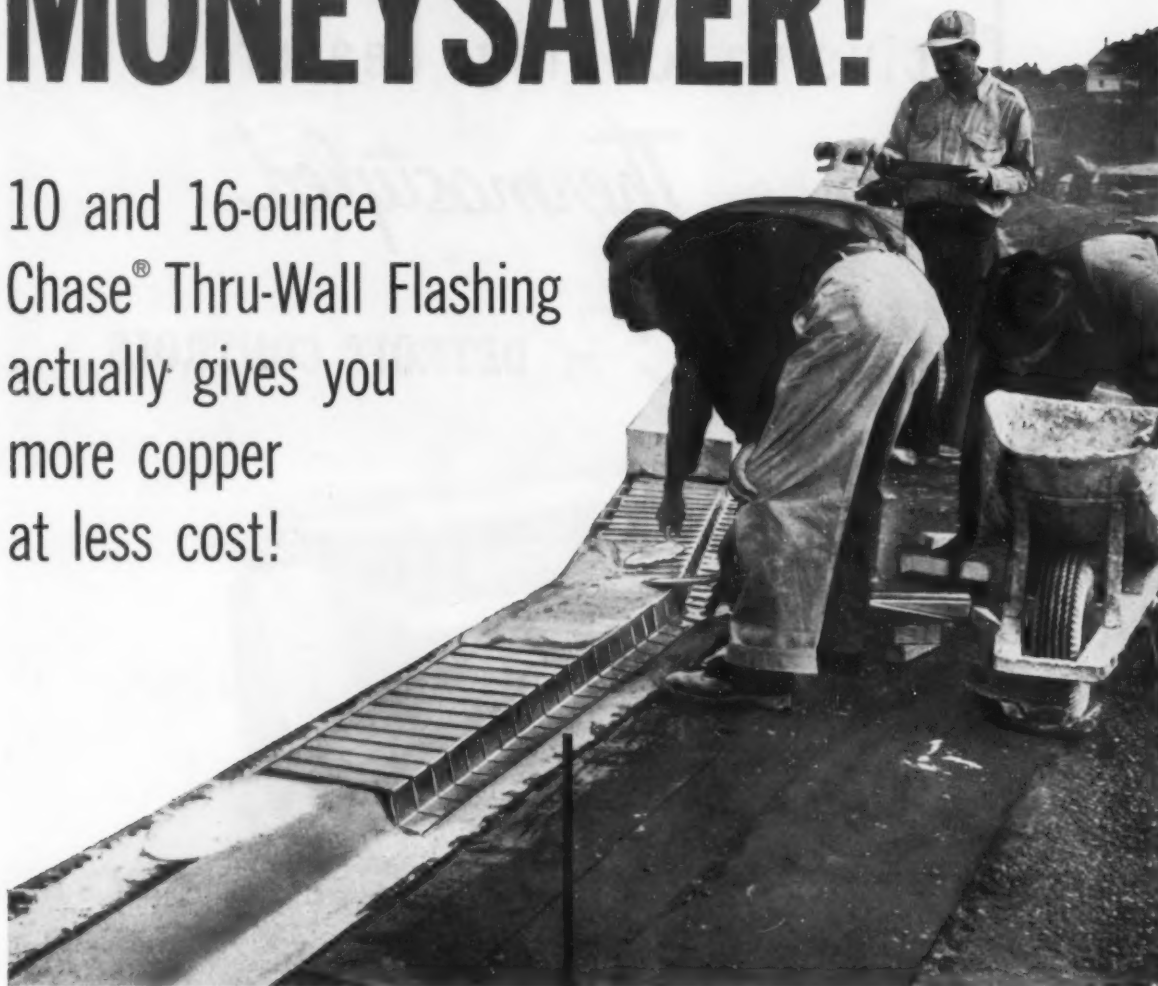


AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

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10 and 16-ounce
Chase® Thru-Wall Flashing
actually gives you
more copper
at less cost!



Remember, it's the **COPPER** that does the water-proofing job of flashing through a masonry wall—and the expenditure should bring the **MOST COPPER** to the job.

Chase 10-ounce Thru-Wall Flashing gives you **42% more copper** than lighter, 7-ounce "copper fabric" or membrane flashing. Yet Chase actually costs **25% less!**

And Chase 16-ounce Copper Thru-Wall Flashing (which costs only about 8% more than 7 oz. membrane flashing) gives you a bonus of **128% more copper!**

What's more, Chase 10 and 16-ounce Copper Thru-Wall Flashing lasts years longer. It's made from quality *rolled temper copper*, rather than dead soft "deposited" temper. And the 3-way bond that's keyed right into the metal guarantees a watertight bond that lasts as long as the wall itself!

Find out more. Write for Free folder giving details and specifications.

Chase

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The Nation's Headquarters for Brass & Copper

Atlanta	Chicago	Denver	Indianapolis	Minneapolis	Philadelphia
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Boston	Cleveland	Grand Rapids	Los Angeles	New Orleans	Providence
Charlotte	Dallas	Houston	Milwaukee	New York	Rochester
	St. Louis	San Francisco	Seattle	Waterbury	

3

FACTUAL reasons

why

Curtis

dealers

can make more money—
CONSISTENTLY:

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CURTIS has 102 years of experience in manufacturing precision made equipment. One of the first manufacturers of packaged air conditioning units—since 1936.

2

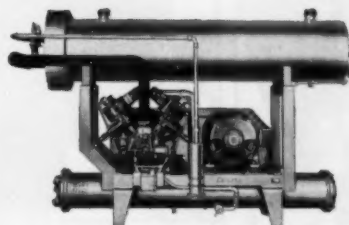
Unsurpassed know-how for building air conditioning units that operate longer with less maintenance and service—YET ARE COMPETITIVELY PRICED with generous profit margin for you.

3

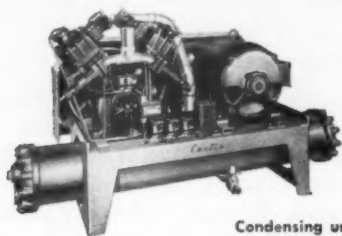
CURTIS provides sales and promotional aids—a complete financing plan—and a national advertising campaign to make your selling easier.



Evaporative Condensers
and Cooling Towers
up to 100 tons.
Air handling units to match.



Packaged Liquid Chillers—
7½ to 100 tons—F-12 or F-22.
With room console units
to provide controlled cooling and heating
without duct work.



Condensing units
up to 100 tons—
F-12 or F-22.



Packaged units
in a rainbow
of colors—
a CURTIS exclusive.
3 through 50 tons.



Packaged
Air Cooled
Air Conditioning Units—
2 through 7½ tons.
Residential and
Commercial applications.

Remember
YOU CAN COUNT ON

Curtis

MANUFACTURING COMPANY

REFRIGERATION DIVISION • 1982 Kienlen Ave., St. Louis 20, Mo.



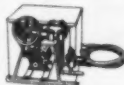
INDUSTRIAL
AIR COMPRESSORS



AUTO LIFTS



AIR CYLINDERS



CAR WASHERS



AUTOMOTIVE
AIR COMPRESSORS



CM-11

Space Planning Provides Year 'Round Comfort

(Continued from page 138)



NARROW DUCTS and close quarters for the installers added to the contractor's problems



TWO DOOR GRILLES provide air for the gas diverter of this furnace

In addition to the problem of installing the ductwork was that of locating the supply and return openings for registers and grilles. Two return grilles were used, one from the second floor installed in the side of the stairway next to the top two steps. The return duct dropped down the wall stud space, turned at the first floor level and ran back to the conditioning unit. This duct passed under the first step of the stairway where the first floor return grille tapped into the return air duct system. The space beneath the stairway was utilized as a closet, the floor of which was raised to provide space for the return air duct system and a supply duct so conditioned air was directed toward the front door.

Two Registers Provide Year 'Round Comfort

The supply air for the living room was provided from ducts which ran in the joist space beneath the second floor. The takeoff connections turned from the ceiling into the stud space in a partition wall and dropped to two supply registers, one of which was in a high wall and the other in a low wall location. The purpose of the two openings is to take advantage of the natural characteristics of conditioned air to obtain the best air circulation in the living room. For summer cooling, the

upper register is opened and the lower one closed. During the winter, the process is reversed.

Ductwork Follows Natural Paths

Providing conditioned air to the second floor through ductwork called for the use of joist space below the second floor to cross the apartment and then drop below the ceiling until the ducts could reach a partition wall with unused stud space. To reach a desirable register location in the rear bedroom it was necessary to run the duct up the stud space to the joist space above the second floor ceiling and follow this opening to a stud space which was convenient for a register opening, and then drop down to the desired level. All ducts placed in the second floor ceiling joist space are covered by insulation.

The modern, individually air conditioned apartments which so recently comprised one of Washington's worst slum areas now house members of the Senate and House of Representatives and their families who have brought with them a new name for the old alley — it is now known as Schott's Court.

The modernization project was carried out by the National Engineering & Development Corp.

now!... you can have TRIPS... PROMOTIONS and Volume Sales

You Can Hunt Jaguar
in Panama **FREE**

...it's Easy

Be one of the first to qualify... hunt jaguar, if you like... or bask in luxury at the magnificent El Panama Hotel — swim, fish, see the Canal, buy exotic, duty-free gifts from all over the world.

Only Vornado dealers can qualify — and you'll be surprised how easy it is... get the complete details from your distributor... and start packing.

First Qualifying Period
Closes **APRIL 15th**



**BE UP FRONT IN '56
GO! WITH Vornado**

Products of The O. A. Sutton Corporation • Wichita, Kansas
Specialists in manufacturing comfort cooling appliances

with
Vornado®
central air conditioners

Everybody in the appliance business has been taking trips—Vornado wants you to go, too! Yes! Go with Vornado!

Vornado's new "packaged" central air conditioner is the "talk" of the trade... it's air cooled... low-cost... fully guaranteed—and has proved its performance in thousands of installations.

Again Vornado is "years ahead" in product design and performance. At last here's the opportunity for volume sales with Vornado's mass merchandising methods.

**THESE TESTED AND PROVED PROMOTIONS
ARE YOURS FOR THE ASKING...**

- * **SELECTED CUSTOMER PLAN**
- * **FINANCE COMPANY PLAN**
- * **NEW HOUSE PARTY PLAN**
- * **EARLY BUYING INCENTIVE PLAN**
- * **MARKET PLACE SELLING CENTER**
- * **DIRECT MAIL AND LITERATURE**

...plus a tremendous schedule of national and local advertising.

**SO... wrap it up... buy your units... win your trip...
get your promotion going—and make money this year.**

CALL YOUR DISTRIBUTOR NOW!

THE O. A. SUTTON CORPORATION • 1807 W. Second St., Wichita, Kansas

I would like complete information on your new, low-cost Central Air Conditioners. It is understood there is no obligation.

NAME _____

FIRM _____

POSITION _____

ADDRESS _____

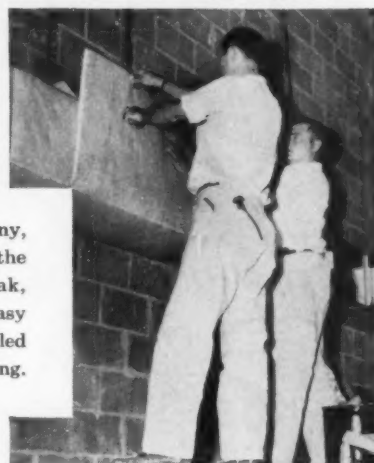
CITY _____ STATE _____

AA - 56-3

INSULATION news from L·O·F GLASS FIBERS COMPANY



Wayne Johnson, of Johnson Insulation Company, used Super-Fine to insulate ducts for the Northwood Shopping Center in Royal Oak, Michigan. He found Super-Fine lightweight, easy to handle and cut—yet so strong it could be pulled between the ducts and walls without tearing.



Super-Fine's low installation cost means big business for contractors!

Fast installation combined with high insulating efficiency can clinch the contract for you.

Super-Fine's millions of fine glass fibers form countless dead air cells which provide highly efficient insulation. It is pleasant to handle—fast and easy to apply. It cuts readily with an ordinary knife, needs no special measuring or fitting,

can quickly be wrapped around ducts and supporting hangers. Contractors find that workmen can apply more Super-Fine per day than other types of insulation.

You save on storage space, too, because Super-Fine comes in compressed rolls up to 72" wide, in all standard thicknesses and roll lengths. They take up less space,

yet the insulation springs back to full thickness when unrolled.

There's big business ahead for you when you discover how Super-Fine can help you save on duct-application costs. Check your Yellow Pages for the nearest distributor or write: L·O·F Glass Fibers Company, Dept. 45-36, 1810 Madison Avenue, Toledo 1, Ohio.

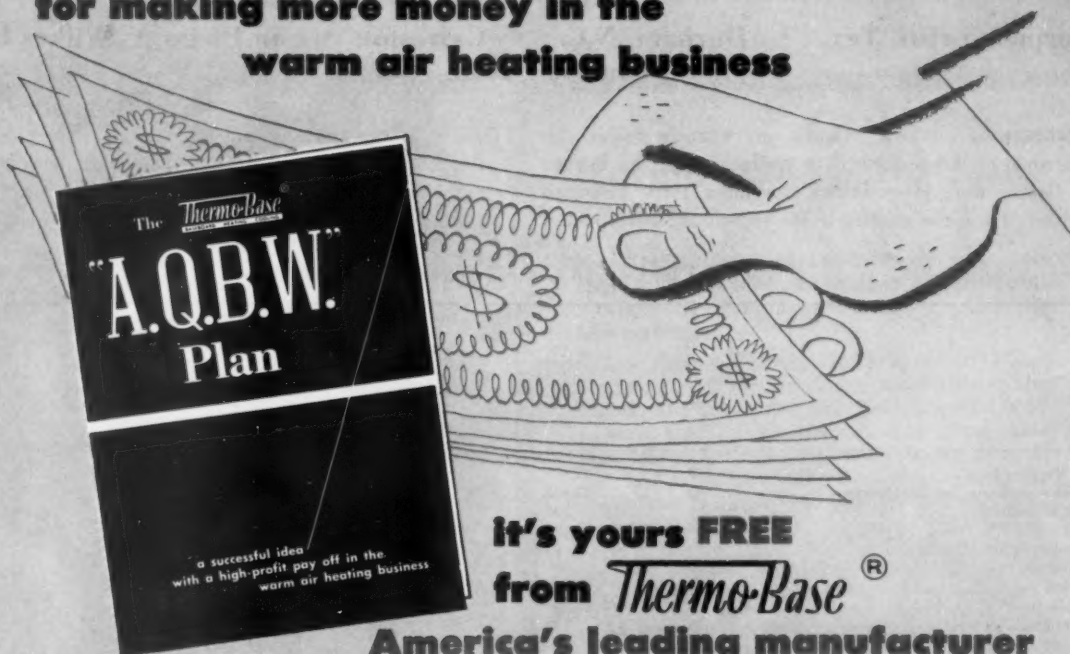


L·O·F GLASS FIBERS COMPANY

TOLEDO 1, OHIO

Makers of glass fibers by the exclusive "Electronic-Extrusion" process

**Here's a proven plan
for making more money in the
warm air heating business**



**It's yours FREE
from *Thermo-Base*®
America's leading manufacturer
of BASEBOARD air distributors for
heating and cooling**

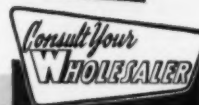
The amazing new A. Q. B. W. Sales Plan will prove that, with very little extra effort on your part, you can make more sales and profits on your warm air heating and cooling installations. There will be no extra cost to you in putting this proven plan to work . . . and you will find, as hundreds of other dealers have, that you can make more profit on every job.

Find out about the amazing **Thermo-Base COMFORT GUARANTEE** that helps you sell every job at a higher price and more profit. Get a FREE copy of the beautiful new full-color **Thermo-Base CATALOG** that includes the greatly simplified method for figuring both heating and cooling installations, that will save you hundreds of hours of estimating time every year so that you can figure more jobs at more profit!

Thermo-Base Div., Gerwin Industries, Inc., Dept. 34, Michigan City, Indiana
Gentlemen: Please send complete information on the A. Q. B. W. Plan and the Thermo-Base Comfort Guarantee.

Name _____ Company _____
Address _____
City _____ State _____

GERWIN INDUSTRIES, Inc., Michigan City, Indiana



Housing Census Heating Data

Corpus Christi, Tex. • Durham, N.C. • Galveston • San Diego • Wilkes Barre
Winston Salem, N.C.

SUGGESTIONS on how a warm air heating dealer can use some of the housing data available from the Bureau of Census were given in the November 1954 American Artisan. Localities covered in the reports are metropolitan

areas that are socially and economically integrated with the central city. Data for various areas has been reported regularly in *American Artisan* since May 1953. Additional reports will continue to appear regularly.

Types of Fuel Used in Centrally Heated Dwelling Units

	Standard Metropolitan Areas					
	Corpus Christi, Tex.	Durham N. C.	Galveston Tex.	San Diego, Calif.	Wilkes-Barre, Pa.	Winston-Salem, N. C.
	Nueces County	Durham County	Galveston County	San Diego County	Luzerne County	Forsyth County
All dwelling units	48,077	26,917	37,510	181,440	110,981	41,338
Number reporting heating equipment	42,980	25,600	31,785	165,790	105,485	38,860
Central heating	5,125	5,830	3,995	60,525	72,695	12,930
Coal	80	2,490	65	620	68,015	6,210
Wood	65	45	35	335	210	130
Utility gas	4,630	70	3,755	50,535	2,455	130
Bottled gas	245	5	70	1,735	285	85
Liquid fuel	10	2,765	20	6,005	685	5,440
Other fuel	75	420	25	1,030	595	855
Not reporting	20	35	25	265	450	80

Types of Nonfarm Dwelling Units, by Type of Heating and Year Built

	Total occupied						Owner occupied			Renter occupied					
	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwelling units	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more
Standard Metropolitan Area of Corpus Christi, Tex. — Nueces County															
All occupied units	40,540	31,445	3,755	3,155	1,835	350	19,455	18,460	995	21,085	12,985	3,050	2,955	1,775	320
HEATING EQUIPMENT															
Central heating	4,688	3,060	406	447	760	15	2,369	2,103	266	2,319	957	235	367	760	...
Piped steam or hot water	2,275	1,561	264	203	232	15	1,034	930	104	1,241	631	215	163	232	...
Warm air furnace	2,413	1,499	142	244	528	...	1,335	1,173	162	1,078	326	20	204	528	...
Noncentral heating, with flue	4,355	3,381	323	285	332	34	1,835	1,771	64	2,520	1,610	274	285	317	34
Nonctrl. htng., without flue; or not htd.	30,540	24,323	2,906	2,321	721	269	14,773	14,166	607	15,767	10,157	2,444	2,221	676	269
Not reported	959	682	122	102	21	32	480	421	59	479	261	98	82	21	17
YEAR BUILT															
1945 or later	9,311	7,974	575	658	104	...	6,754	6,522	232	2,557	1,452	443	558	104	...
1940 to 1944	8,517	6,338	501	831	847	...	4,505	4,311	194	4,012	2,027	369	781	835	...
1939 or earlier	21,473	16,252	2,507	1,611	802	301	7,714	7,157	557	13,759	9,095	2,066	1,561	766	271
Not reported	1,240	881	172	56	82	49	482	470	12	758	411	172	56	70	49

Standard Metropolitan Area of Durham, N.C. — Durham County

All occupied units	23,505	14,360	6,685	1,675	420	365	10,245	9,055	1,190	13,260	5,305	5,725	1,460	415	355
HEATING EQUIPMENT															
Central heating	5,475	3,699	992	362	78	344	3,450	3,041	409	2,025	658	700	255	78	334
Piped steam or hot water	2,488	1,238	466	362	78	344	1,109	888	221	1,379	350	362	255	78	334
Warm air furnace	2,987	2,461	526	...	...	...	2,341	2,153	188	646	308	338	...	...	...
Noncentral heating, with flue	16,349	9,646	5,173	1,219	311	...	6,040	5,349	691	10,309	4,297	4,589	1,112	311	...
Nonctrl. htng., without flue; or not htd.	1,179	730	380	69	...	...	464	422	42	715	308	338	69	...	...
Not reported	494	285	139	23	26	21	286	244	42	208	41	97	23	26	21
YEAR BUILT															
1945 or later	3,607	2,567	798	169	73	...	2,142	1,992	150	1,465	575	648	169	73	...
1940 to 1944	2,079	1,774	263	42	...	...	1,464	1,434	30	615	340	233	42	...	...
1939 or earlier	17,438	9,782	5,542	1,442	317	355	6,409	5,444	965	11,029	4,338	4,792	1,227	317	355
Not reported	365	238	82	21	24	...	216	186	30	149	52	52	21	24	...

(Continued on page 150)

2 proven money-makers

to help you profitably "outsell" in the new construction market



Norman SOUTHERNER

The original forced-air horizontal gas furnace with the finest and longest record of service-free performance in thousands of installations.

The Norman Southerner is competitively priced to sell in the project development market. But it offers many profitable "plus" advantages besides the price tag.

The Norman Southerner is the pioneer horizontal gas furnace . . . design improved for many years . . . and performance proved in thousands of installations. It is the only horizontal furnace which carries a 10-year factory warranty.

Once the Southerner is installed, you can forget about it. This is an important "plus" advantage in the highly competitive new construction market where service call-backs can quickly eat up profits.

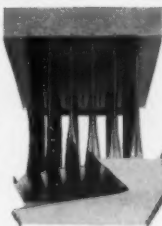
A.G.A. Approved

The Norman Southerner is approved by A.G.A. as a central heating forced air furnace, and as a unit heater for use with natural, mixed, manufactured and LP gas.



An Important Norman "Plus" Feature

The exclusive new Norman Heat Exchanger is just one of the many engineering "plus" features in the Southerner. This "air-foil" tube heat exchanger is scientifically designed so the velocity of the combustion gas passing through the tube is varied by changing the cross sectional area several times throughout the pass which creates turbulence and assures efficient wiping action and maximum heat transfer. There are no welds in the combustion zone, to assure longer life.



Norman products co.

1150 Chesapeake Avenue, Columbus 12, Ohio
Manufacturers and designers of quality gas heating and air conditioning equipment



Schoolroom Heaters



Upshot and Inshot Norman residential and industrial Conversion Burners



Unit Heaters



Duct Furnaces

Norman SKETCHBOOK

The finest sales tool available to help you show and sell the advantages of horizontal gas furnace installations to builders, architects, home owners.

The Norman Sketchbook is a powerful and profitable sales tool developed for dealers in the heating and air conditioning field. It contains 32 pages of architects drawings showing actual home floor plans with heating and cooling systems sketched in. Packed with visual ideas to help develop more business from builders and architects, it demonstrates to them the many "plus" advantages of the Norman Southerner horizontal forced-air gas furnace in modern home design and construction.

In replacement selling, you can select a floor plan from the Sketchbook similar to your prospect's, and show him exactly how the Norman Southerner fits his needs.



Mail the coupon today for illustrated folder showing all the "plus" advantages of the Norman Southerner horizontal forced-air gas furnace . . . and a copy of its profitable sales tool, the Norman Sketchbook.

NORMAN PRODUCTS CO.
1150 Chesapeake Ave.
Columbus 12, Ohio

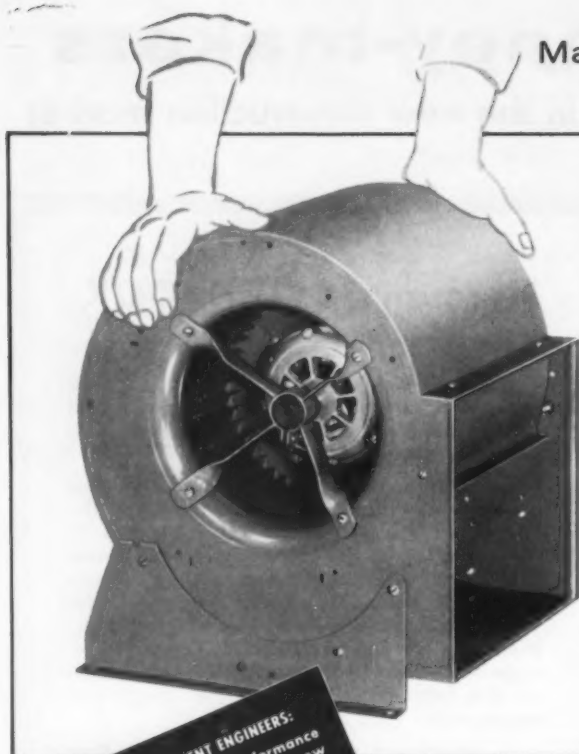
Please send me illustrated folder on the Norman Southerner and copy of the Norman Sketchbook.

Name

Address

City Zone State

Makes modern, compact designs
still more practical



THE NEW
Brundage
POWER-CENTER
BLOWER

TEST AND DEVELOPMENT ENGINEERS:
Because of its different performance characteristics, this unit opens new design possibilities. We suggest that you avail yourself of Brundage test data in the early stages of your development program.

The demand for more compact equipment—and ever-higher performance—calls for maximum blower output under increasing static pressures.

The Brundage Power-Center Blower fits this need to a "T."

Using the new Iron Fireman-developed motor, the Brundage Power-Center Blower eliminates the space—and the cost—required for externally mounted motors, belts, and drives. And test results show that the Power-Center maintains efficiency in the highest static pressure ranges.

Along with these design advantages, the Power-Center affords a new measure of durability. With a rubber cushioned shaft supported on both ends, and sealed ball bearings, it will run quiet and true. It will add to your products' reputation.

Presently available in limited test quantities, the Power-Center will be in full production soon. Now is the time to schedule your test and development program.

MOTOR AND WHEEL are integrally joined, can't work loose. You're assured of full efficiency and quiet operation for customer satisfaction.



UNIVERSAL MOUNTING gives you the greatest design freedom. Each blower is readily installed in any standard discharge position.



TEST BLOWERS are being supplied as motors become available. Brundage engineers will gladly assist you in test and development work.



THE *Brundage* COMPANY
504 North Park Street Kalamazoo, Michigan

Blower Specialists
for 35 Years

“One of
the first things
I learned was this:
you can always
depend on
a Field Control”

One of the first things an apprentice learns is that you don't experiment with a customer's comfort or money. The best products give the best value. And among draft controls that's Field. Dealers who learned that lesson themselves a score of years ago are now passing it on to tomorrow's contractors. We are proud to have earned the good will of so many dealers for so many years.



You have put your faith in

Field

more than 15,000,000 times



FIELD CONTROL DIVISION of H. D. CONKEY & COMPANY, MENDOTA, ILLINOIS

Affiliates: CONCO BUILDING PRODUCTS, INC. • Brick, Tile, Stone CONCO MATERIALS HANDLING DIVISION • Cranes, Hoists

Housing Census Heating Data

(Continued from page 146)

Types of Nonfarm Dwelling Units, by Type of Heating and Year Built

	Total occupied						Owner occupied			Renter occupied					
	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwelling units	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more
Standard Metropolitan Area of Galveston, Tex. — Galveston County															
All occupied units	31,775	20,670	5,075	3,285	1,720	1,025	14,005	12,265	1,740	17,770	8,405	3,870	2,855	1,625	1,015
HEATING EQUIPMENT															
Central heating	3,922	2,872	602	233	160	55	2,338	2,132	206	1,584	740	454	233	112	45
Piped steam or hot water	2,828	1,831	578	233	141	45	1,374	1,178	196	1,454	653	430	233	93	45
Warm air furnace	1,094	1,041	24	...	19	10	964	954	10	130	87	24	...	19	...
Noncentral heating, with flue	3,682	1,856	695	356	504	271	1,250	1,137	113	2,432	719	621	317	504	271
Nonctrl. htng., without flue; or not htd.	23,041	15,285	3,584	2,569	926	677	10,078	8,731	1,347	12,963	6,554	2,676	2,178	878	677
Not reported	1,130	656	193	127	131	23	338	264	74	792	392	119	127	131	23
YEAR BUILT															
1945 or later	5,465	4,110	825	126	129	275	3,308	3,131	177	2,157	979	680	126	97	275
1940 to 1944	5,179	3,303	416	489	485	486	2,352	2,269	83	2,827	1,034	392	430	485	486
1939 or earlier	20,290	12,751	3,653	2,550	1,082	254	7,976	6,549	1,427	12,514	6,202	2,641	2,198	1,019	254
Not reported	832	506	181	121	24	...	360	316	44	472	190	157	101	24	...
Standard Metropolitan Area of San Diego, Calif. — San Diego County															
All occupied units	159,695	111,730	20,935	12,555	9,995	4,480	82,230	77,320	4,910	77,465	34,410	17,545	11,540	9,635	4,335
HEATING EQUIPMENT															
Central heating	57,807	41,373	5,658	3,991	4,927	1,858	34,303	32,561	1,742	23,504	8,812	4,563	3,602	4,727	1,800
Piped steam or hot water	7,376	4,105	721	599	470	1,481	2,854	2,615	239	4,522	1,490	616	534	430	1,452
Warm air furnace	50,431	37,268	4,937	3,392	4,457	377	31,449	29,946	1,503	18,982	7,322	3,947	3,068	4,297	348
Noncentral heating, with flue	45,816	33,630	5,329	4,017	2,148	692	25,872	24,672	1,200	19,944	8,958	4,403	3,758	2,148	677
Nonctrl. htng., without flue; or not htd.	51,967	33,347	9,569	4,414	2,783	1,854	20,041	18,199	1,842	31,926	15,148	8,327	4,047	2,623	1,781
Not reported	4,109	3,386	377	133	136	77	2,022	1,896	126	2,087	1,490	251	133	136	77
YEAR BUILT															
1945 or later	34,895	27,255	2,973	2,019	2,350	298	23,195	22,412	783	11,700	4,843	2,451	1,906	2,223	277
1940 to 1944	34,079	18,058	7,294	4,429	3,898	400	12,543	12,058	485	21,536	6,000	7,091	4,147	3,898	400
1939 or earlier	84,750	62,808	9,589	5,512	3,417	3,424	45,005	41,526	3,479	39,745	21,282	7,039	4,920	3,184	3,320
Not reported	5,976	3,612	1,081	595	329	359	1,490	1,325	165	4,486	2,287	965	567	329	338
Standard Metropolitan Area of Wilkes Barre, Pa. — Luzerne County															
All occupied units	100,840	48,260	38,710	9,900	2,920	1,050	53,095	36,205	16,890	47,745	12,055	24,320	7,790	2,645	935
HEATING EQUIPMENT															
Central heating	68,868	35,012	24,184	6,430	2,280	962	40,158	28,102	12,056	28,710	6,910	14,007	4,816	2,096	881
Piped steam or hot water	55,218	26,799	19,698	5,639	2,143	939	31,792	21,700	10,092	23,426	5,099	11,210	4,240	1,996	881
Warm air furnace	13,650	8,213	4,486	791	137	23	8,366	6,402	1,964	5,284	1,811	2,797	576	100	...
Noncentral heating, with flue	22,108	8,953	10,164	2,439	516	36	8,937	5,475	3,462	13,171	3,478	7,182	2,051	424	36
Nonctrl. htng., without flue; or not htd.	8,726	3,777	3,991	846	100	12	3,455	2,252	1,203	5,271	1,525	2,886	760	100	...
Not reported	1,138	518	371	183	25	41	545	375	170	593	143	246	161	25	18
YEAR BUILT															
1945 or later	2,103	1,810	188	25	28	52	1,639	1,561	78	464	249	135	...	28	52
1940 to 1944	1,457	1,187	188	82	...	...	1,066	1,013	53	391	174	135	82	...	...
1939 or earlier	95,053	44,201	37,523	9,496	2,835	998	49,493	32,944	16,549	45,560	11,257	23,398	7,462	2,560	883
Not reported	2,221	1,059	808	297	57	...	895	685	210	1,326	374	649	246	57	...
Standard Metropolitan Area of Winston Salem, N.C. — Forsyth County															
All occupied units	35,675	25,195	5,985	3,130	825	540	18,580	17,160	1,420	17,095	8,035	4,860	2,895	775	530
HEATING EQUIPMENT															
Central heating	12,200	8,925	1,385	1,165	307	418	8,624	7,799	825	3,576	1,126	732	1,037	273	408
Piped steam or hot water	3,058	1,671	178	669	122	418	1,476	1,340	136	1,582	331	133	605	105	408
Warm air furnace	9,142	7,254	1,207	496	185	...	7,148	6,459	689	1,994	795	599	432	168	...
Noncentral heating, with flue	20,596	14,464	3,910	1,684	436	102	8,832	8,415	417	11,764	6,049	3,595	1,599	419	102
Nonctrl. htng., without flue; or not htd.	2,068	1,299	535	151	63	20	859	725	134	1,209	574	422	130	63	20
Not reported	814	507	156	130	21	...	265	220	45	549	287	111	130	21	...
YEAR BUILT															
1945 or later	6,743	5,123	621	721	194	84	4,723	4,513	210	2,020	610	437	695	194	84
1940 to 1944	2,218	1,983	206	29	...	...	1,775	1,706	69	443	277	137	29	...	...
1939 or earlier	25,713	17,447	5,059	2,210	551	446	11,583	10,548	1,035	14,130	6,899	4,232	2,027	526	446
Not reported	995	643	101	171	80	...	491	394	97	504	249	55	145	55	...

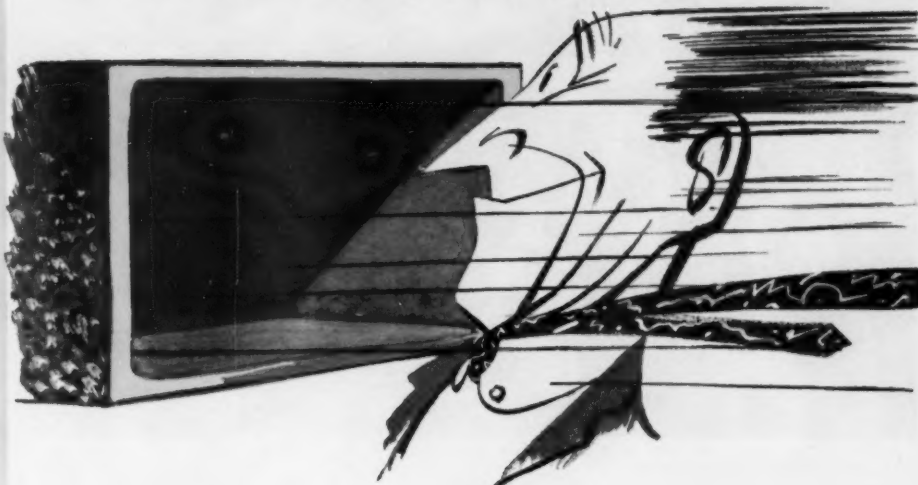
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 Longwood 6-8351
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 Charleston Mts., S. C. . . 4-5973
 Chicago . . . Waterfall 8-8135 or
 Fulton 5-0550
 Cincinnati . . . CHerry 1-7435
 Cleveland . . . SKyline 1-4200
 Columbia, S. C. . . 2-3361
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 San Antonio . . . TAYlor 2-1509
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 Seattle, Wash. . . SEneca 7250
 St. Louis . . . CHestnut 1-0445
 St. Paul . . . MIDway 6-7885
 Syracuse, N. Y. . . 73-0216
 Tampa, Fla. . . 4-4911
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See our catalogs in
 Sweet's Architectural &
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Line ducts with **ULTRALITE #300**



and move up to 7500 cfm of air—

without objectionable noise!

without eroding the duct liner!

**without much more air resistance than
 you get from bare metal ducts!**

For performance, there is nothing on the market today like Ultralite #300 — the only spray-coated duct liner of long textile type glass fibers.

Ultralite #300 possesses the density that it takes to silence high frequency fan noise. Its long staple strength and spray-coating prevents delamination even in high velocity systems. And its .021 friction coefficient compares very favorably with .019 coefficient of unlined bare

metal ducts.

Ultralite #300's performance in all air conditioning systems — low, medium or high velocity — can well mean the difference between a successful and an unsatisfactory job . . . may even mean a difference in the size of duct required to handle the flow of air! Get the facts today from your nearby Ultralite distributor whose phone number is listed in the adjacent column.

**Write Today for New 8-Page Technical Brochure
 "Ultralite Thermal and Acoustical Duct Insulations"**

GUSTIN-BACON *Manufacturing Company*

Thermal and acoustical insulations • Molded glass fiber pipe insulation
 Pipe couplings and fittings

226 W. 10th St., Kansas City, Mo.



Reduce installation cost up to 12% with

Kaiser Aluminum Sheet for Ducts

WITH lightweight aluminum ductwork you can often skip many steps in handling and trucking assembled sections.

Long sections can be assembled on the floor and lifted into place without heavy scaffolds or hoisting equipment.

Worker fatigue is reduced. There is less wear on shop equipment. Your entire operation is speeded up.

This can mean savings up to 12% in labor and handling costs.

Additional savings are obtained if sheet is used in coiled form cut to specified lengths, as there is no waste from trimming or shearing. And smaller heat-carrying ducts, made possible by aluminum's high BTU delivery, save metal and fabrication.

Kaiser Aluminum Sheet for ducts is easy to fabricate. The same methods and equipment can be used as with galvanized, and there is no metallic coating to chip or peel during bending. Aluminum's appearance blends with the modern

architecture of offices and stores without additional finishes.

Delivers 17% to 46% more heat than bare or asbestos paper-covered galvanized due to aluminum's low emissivity, low friction loss, and high thermal reflectivity. Same BTU delivery with as much as 14% smaller duct sizes. Needs no insulation. High corrosion resistance eliminates painting or other protective measures.

For complete information, contact any Kaiser Aluminum sales office, located in principal cities, or one of our distributors. Kaiser Aluminum & Chemical Sales, Inc. *General Sales Office*, Palmolive Building, Chicago 11, Illinois; *Executive Office*, Kaiser Building, Oakland 12, California.

Send coupon for free folder. Helps you take full advantage of aluminum's unique combination of properties. Availability charts on Kaiser Aluminum Sheet for ducts, in both flattened and coiled sheets, including thicknesses, weights, etc. Also contains weight and coverage comparisons for aluminum and galvanized. Mail coupon today!

Kaiser Aluminum & Chemical Sales, Inc.
Room 5372, Industrial Service Division
1924 Broadway, Oakland 12, California

Please send _____ free copies of folder entitled
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Kaiser Aluminum

setting the pace—in growth, quality and service

NO DIFFERENCE IN FURNACES EXCEPT PRICE?

Have you ever installed *Sequoia* Gas Furnaces?

SEQUOIA

DESIGN makes one big difference—something we spotted on our job tickets just as soon as we began using Sequoia's. This Rev-Flo model is a good example:

Notice how all of my connection points are right on the face—and that I can easily reach my plenum and flue outlets. I don't have to twist myself up like a rubber band to get this furnace in! Everything goes faster... even the pilot's right here and for final adjustments, the whole blower assembly is on a sliding drawer.

Little things? Sure—but added up they mean a lot of installation time saved. And in a cost conscious shop like our's, that's dollars saved!

SEQUOIA'S sales story to you, Mr. Heating Dealer, is simple. You can take your choice: (a) Make more profit per job, or, (b) Bid installations more competitively, or, (c) Deliver a better quality furnace at the same price.

YOU ARE INVITED TO WRITE FOR DETAILS ON THE COMPLETE SEQUOIA GAS FURNACE LINE TODAY



**ANOTHER
KEY SEQUOIA DEALER**

**A. J. HOWETH
CENTRAL HEATING & AIR CONDITIONING CO.
of Bellaire, Texas**

Sequoia MANUFACTURING CO.

1000 BRITTAN AVENUE • SAN CARLOS, CALIFORNIA

Manufacturers of Upright, Reverse-Flow and Horizontal Gas Furnaces and Air Conditioners

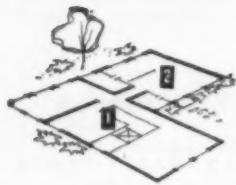
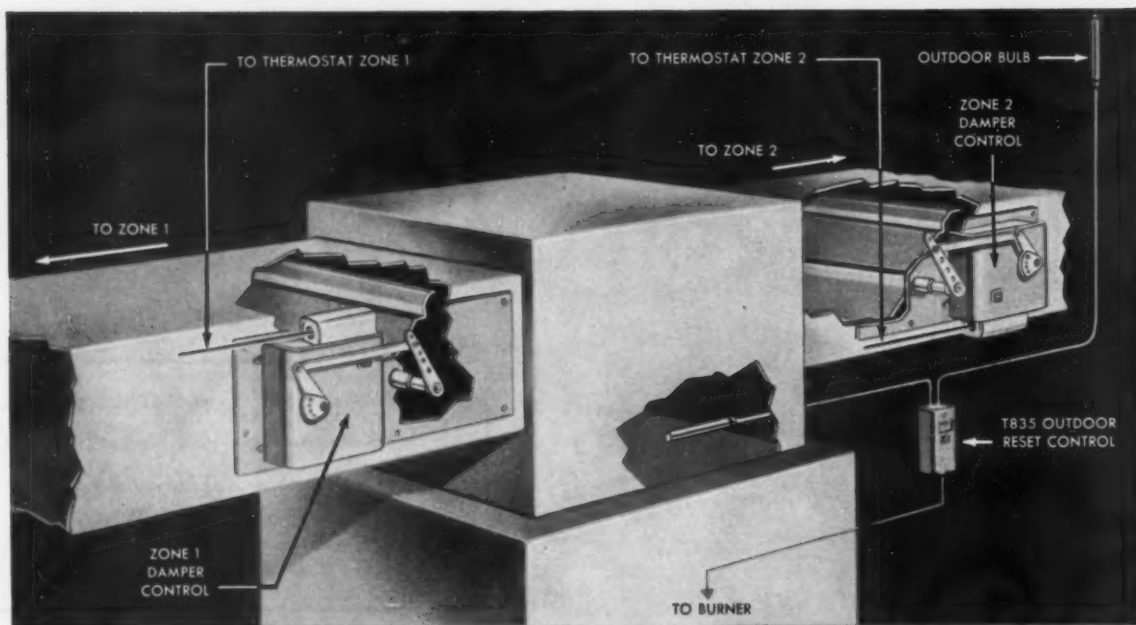


Circle an area within a 100-mile radius of Houston, and there you'll find Central crews busily producing an annual \$500,000-plus volume in heating and air conditioning. Handling more than 1,000 installations a year in this key Texas market! Sequoia thanks key U. S. Dealer Howeth for his unsolicited praise: "... after installing nearly 6,000 Sequoia furnaces... we have yet to find even the first defective one from the factory!"

KEY to the new Honeywell Forced Air Zone

NEW MODULATING DAMPER MOTOR

easy to install—for heating and heating-cooling systems



Zoning with new damper motor gives your customers comfort in every room

HONEYWELL Zone Control is the modern method of heating that gives different areas of a home the different amounts of heating and cooling

they require. That's a story that makes sense to your customers. And it makes even more sense with the new *modulating* damper motor that measures out the exact quantity of heating or cooling called for by each thermostat.

Look at the diagram above for a typical installation in a home divided into two comfort zones, each controlled

by its own thermostat. The key to the system—the new M829 modulating motor and its damper—is quickly and easily mounted on the duct in five simple steps as explained and illustrated on the opposite page.

No other system gives as much comfort and efficiency—without involving troublesome service calls. You'll be way ahead in customer satisfaction as well as in the profit resulting from a more complete job.

For complete information on the new Honeywell Forced Air Zone Control System, or details on wet heat zoning equipment, call your local Honeywell office. Or write Honeywell, Dept. AA-3-39, Minneapolis 8, Minnesota.

Control System



M829 modulating damper actuator adjusts the damper to a position that lets a *measured* amount of heating or cooling through the duct. Each motor is controlled by signals from the thermostat in its corresponding zone.

The motor is noiseless and has no gears or pumps to get out of order. It can be mounted in any position.

T835 outdoor reset control operates the burner—varies furnace temperature as the outside temperature changes.



New simplified wiring panel



Clock Thermostat



Honeywell Round

Your choice of

MINNEAPOLIS
Honeywell

Zone Control



112 offices across the nation

Five easy steps to install the new actuator-damper package which includes the new D522A damper, M829 modulating motor and the Q401A motor bracket.



Step 1—Determine where the damper is to be mounted and measure for the front and rear bearings. Honeywell Zone Control damper kit contains all necessary installation parts.



Step 2—Cardboard templates are provided in every kit. By using a template and locating it under the previously scribed bearing location, the damper slot can be cut out quickly and easily.



Step 3—The damper provided in the kit is a universal damper which can be cut to fit any duct. After measuring the width of the duct, cut the damper to the length which is desired.



Step 4—Drive the pointed damper shaft through the far side of the duct and insert damper. The mounting plate on the cutaway side is then easily fastened to the duct.



Step 5—Mount the actuator and connect the linkage to the damper shaft. The simple, low-voltage wiring is then run to the thermostat and the installation is complete.



CENTRAL HEATING UNITS

gas fired **Conversion** burners



Your customers will like the economy and efficiency of a JZ Gas Conversion Burner that eliminates coal storage and handling.

JZ Gas Fired Conversion Burner is fully automatic with a choice of electric or gas-actuated controls.

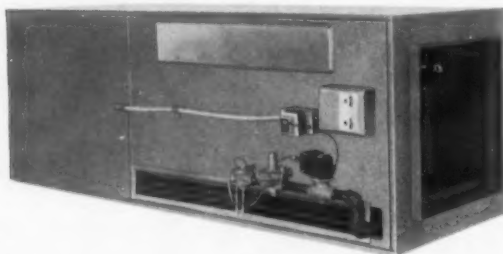


Installation — it is easy to make a workman like job — just bricks in ash pit opening of furnace — and it will fit 98% of the domestic heating plants. Gas Control Valves, pilot and piping are all shipped in a complete package assembly.

One Model #CB-200, on natural gas has input rating of 75,000 to 200,000 Btu. Pipe size $\frac{3}{4}$ ". A.G.A. approved.

Central gas heaters VERTICAL OR HORIZONTAL

Central Heating Units that are universally adaptable; a complete package unit ready for installation. Vertical and Horizontal models of equal efficiency permit installation in basement, attic, service closet or utility room in old or new homes.



The Horizontal model can even be installed under the house, or for industrial heating can be installed on shelf or balcony; used as a suspended heater or as a duct heater.

Capacities from 65,000 Btu/hr input on natural, mixed or L.P. gas. A.G.A. approved.

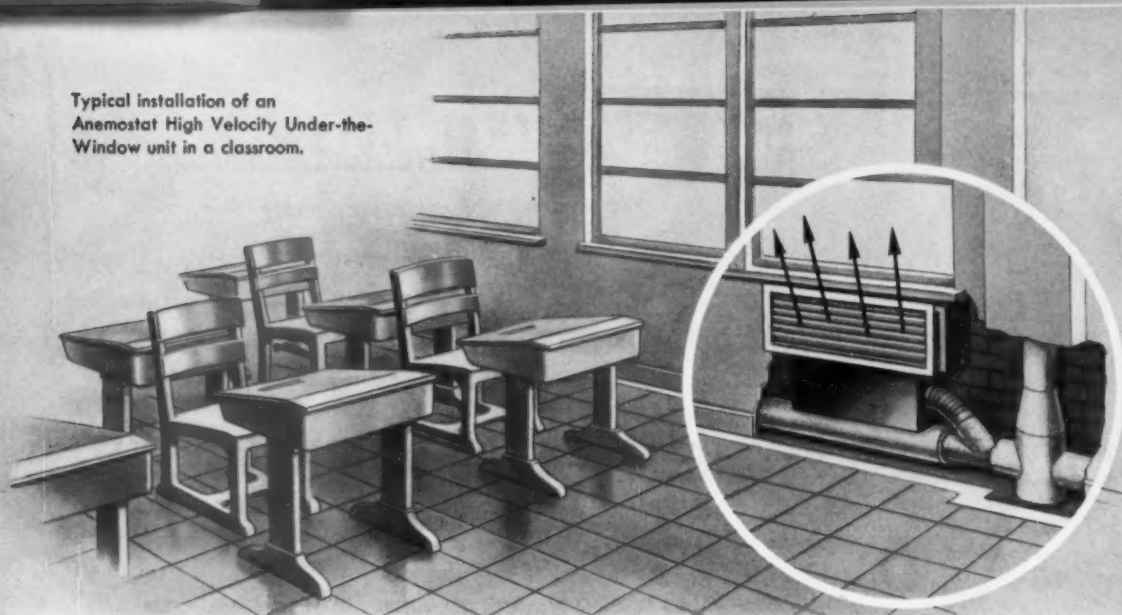
Write for illustrated literature and prices.



JOHN ZINK COMPANY

4401 S. PEORIA TULSA, OKLA.

Typical installation of an Anemostat High Velocity Under-the-Window unit in a classroom.



How to deliver high velocity air to schoolrooms

Shown here are two ways of using the Anemostat All-Air High Velocity system of draftless air distribution for heating and ventilating schools. Under-the-Window units (above) are the most practical for colder climates. Corridor distribution (below) is preferable in warmer climates.

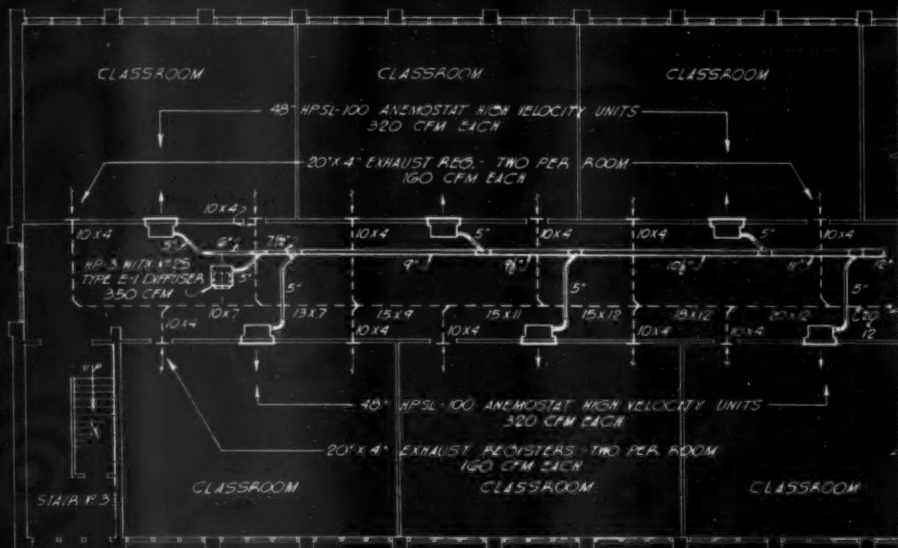
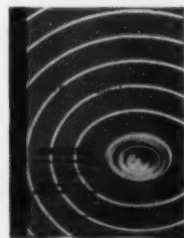
Advantages:

- All-Air High Velocity units require smaller than conventional ducts, thus save space and money.
- All-Air HV units can be used for individual or zone control, in single or dual duct installation.
- Since air is supplied from the main equipment room,

there is no need to break through the outside of the building for prime air make-up. This eliminates grilles, dampers, possibility of leaks.

- The Anemostat All-Air HV system can be simply installed by the sheet metal trades. No supply or return pipes are required. Units are quiet, need a minimum of maintenance from custodians.

For latest data on All-Air High Velocity units, write on your business letterhead for new Selection Manual 50 to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.



Diagrammatic layout shows corridor distribution of high velocity air for wing of school.

*So Halstead & Mitchell
engineers said:*

'THIS HAS A BEARING ON COOLING TOWER PERFORMANCE'

Nothing has more bearing on cooling tower performance and life than do tower fan bearings. On them turn the induced draft cooling tower's *only moving parts*.

Announcement by Halstead & Mitchell engineers of a *permanently sealed and lubricated fan bearing* means a bearing so designed as to completely eliminate moisture—and consequent rusting of the bearing balls and races. The *elimination of periodic greasing* cuts your tower maintenance costs to an absolute minimum . . . literally adds years to cooling tower life.

With not a single bearing failure reported from the hundreds of these "new bearing" towers in actual use, Halstead & Mitchell offers you . . . now more than ever . . . the best buy in cooling towers on the market today

SUPER-QUIET, 4-BLADE FANS, TOO!

There are new fans, too, on Halstead & Mitchell Cooling Towers—deep-pitch fans which operate at much, much lower speeds—actually *cut cooling tower noise level in half*. Sturdy, stainless steel fan blades . . . stainless steel fan shafts . . . make sure your tower will have not only a quiet life, but a long one, too!

For Complete Details, Write for Bulletin CT-584



Halstead & Mitchell

BESSEMER BUILDING, PITTSBURGH 22, PA.

20-Year Guarantee!

on the wetted deck surface against rotting or fungus attack is an extra given you only by Halstead & Mitchell. Combined with the H & M Protected Steel concept, it offers unsurpassed protection against water and weather.

**H & M COOLING TOWERS ARE AT LEADING
WHOLESALEERS EVERYWHERE**



New Bearing available 5 thru 50 Tons

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the application of these products. For additional product information which is available, see this month's New Literature department

Cheek Bender

CHEEK BENDER designed for inside corner bends normally done by hand — Bett-Marr Mfg. Co., Hopkins, Minn. Unit has 12 in. throat and accommodates up to



20 ga. metal; weight is 41 lb. Changeable strips provide adjustment for varying width bends. Unit is equipped with strips for $\frac{1}{4}$ and $\frac{5}{8}$ in. bends; strips for $\frac{3}{8}$ and $\frac{1}{2}$ in. bends are also available.

Fiber, Foil Insulation

LIGHT DENSITY glass fiber insulation with aluminum reflective vapor barrier on one side with tabs for nailing or stapling — L.O.F. Glass Fibers Co., 1810 Madison Ave., Toledo 2, O. Available in standard, medium and full thicknesses, product is said to range from 1 to 2 oz. per running ft. Insulation is in widths to fit 16 in. stud spaces and is available to accommodate 20 and 24 in. spacings. Foil is applied to only one side to permit insulation to "breathe" toward the outside, the company reports.

Gas Pressure Regulator

MODEL H-250 gas pressure regulator in $\frac{1}{2}$ and $\frac{3}{4}$ in. pipe sizes designed to take the place of two standard size regulators — Major Controls Co., Highway 71 and Yorba Rd., P.O. Box 537, Corona, Calif. In-line regulators have capacities of 126,000 ($\frac{1}{2}$ in.) and 139,000 Btu. Body has vise grips; hexagonal flange is designed to facilitate installation in enclosed spaces. Unit is cast and fabricated of light weight aluminum alloy.

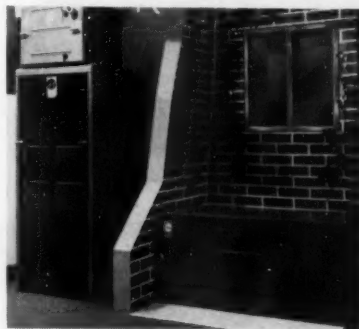
Fan Cooled Motors

"STANDARD ENCLOSED" and "Severe Duty Enclosed" models of fan cooled, a-c motor in 1/5 hp range, for

ventilating systems handling contaminated air — General Electric Co., 1 River Rd., Schenectady 5, N.Y. Standard models feature steel conduit box and fan cover; conduit box has keyhole mounting for quick installation. A $\frac{1}{2}$ in. conduit hole with $\frac{3}{4}$ in. knock-out is also provided; conduit box is gasketed. Fan cover is light weight steel; cast iron is used on the rest of the enclosure. Both models have long, permanent leads for use with wire nuts and lifting eyes. On larger models, threaded parts are coated with special lubrication; motor shaft and washers on through bolts are sealed for added moisture protection.

Redesigned Furnace, Air Conditioners

"RHEEMAIRE" CENTRAL air conditioning unit with thin water film covering surface of copper condenser, and oil fired furnace with "Flex-Fold" steel combustion chamber—Rheem Mfg. Co., 7600 S. Kedzie Ave., Chicago 29. Air conditioner has condenser unit en-



cased in stainless steel; water film, combined with all copper tubing and fins on condenser unit, is designed to increase the rate of heat removal. Mechanical moving parts are located outside the house. Cooling section can be installed in the ducts of most warm air furnaces, the company states. Oil fired furnaces feature heat exchangers with convolute design and hinged baffles. Combustion chamber is fabricated by folding alloy steel together to allow for expansion and contraction of the steel through the on and off cycles of the burner. Unit is designed for conversion to gas if desired.

Combustion Chamber Reflector

STAINLESS STEEL DISC placed in furnace combustion chamber using gun type oil conversion burner to increase combustion efficiency — Vape-O-Plate Sales Corp., Janesville, Wis. Semi-conical in shape to con-

equipment developments

(Continued)

form to natural flow of combustion gases, disc rests on 3 adjustable legs over combustion chamber. Corrugated design is said to provide greater resistance to warpage and increase reflective characteristics. Unit is designed to: 1) bring combustion temperatures up rapidly, increasing vaporization rate; 2) restrict combustion area, holding air and oil mixture in close union to force completion of burning process; 3) cause every oil particle to meet a hot surface as it rises; 4) eliminate sooting and waste caused by incomplete vaporization and burning at top of flame; 5) provide efficient heat deflection, directing hot gases down in chamber and add to radiating surface.

High Ceiling Diffuser

MODEL BP CEILING diffuser with variation of air patterns from horizontal to vertical—Barber-Coleman Co., 1101 Rock St., Rockford, Ill. Designed for long vertical



air throw, unit is said to drive warm air to the floor from mounting heights up to 50 ft with temperature differentials up to 40 F. Adjustment of air patterns can be made from the floor or with an adapter unit through the duct from crawl space above ceiling.

Centrifugal Blowers

BACKWARD CURVE, non overloading centrifugal blower with hollow sectioned aerodynamic shaped airfoil blades — Chicago Blower Corp., 9867 Pacific Ave., Franklin Park, Ill. Blade design is said to eliminate eddy currents. Blowers are available in direct or V-belt drive. Spun type aerodynamic inlet cones are designed to reduce air turbulence. Blowers have single or double race, self-aligning ball bearing pillow blocks; larger fans have roller bearings. Wheel sizes range from 13½ to 143 in. Air deliveries are from 600 to 1 million cfm, 1/8 to 32 in.

Roof Exhauster

"ALUMALUNG" LOW silhouette roof exhauster built of extruded aluminum sections — Iron Lung Ventilator

Co., 5403 Prospect Ave., Cleveland 3, O. Available in 20, 24, 30, 36, 42, 48 and 60 in. sizes and in capacities from 3800 to 42,000 cfm, all-aluminum exhausters is 21 in. high; all seams are welded.

Heavy Duty Lock Former

"SUPER SPEED" lock former said to make Pittsburgh locks and other seams at approximately 75 lineal ft per min.—Lockformer Co., 4615 W. Roosevelt Rd.,



Chicago 50. Unit has 2 hp, 220/440 volt, 3 phase motor with matched double V belt drive. Lock former is pressure lubricated; has large work table and guiding surface area; speed is increased over standard models for application in large production shops.

Duct Noise Silencers

"Q-DUCT" SECTIONS designed to fit into air conditioning duct system during design stage to reduce duct noise — Industrial Acoustics Co., Inc., 341 Jackson Ave., New York 54. Available in 148 sizes, silencing units can also be attached to blower intakes and discharge systems or any other point where air flow noise is encountered.

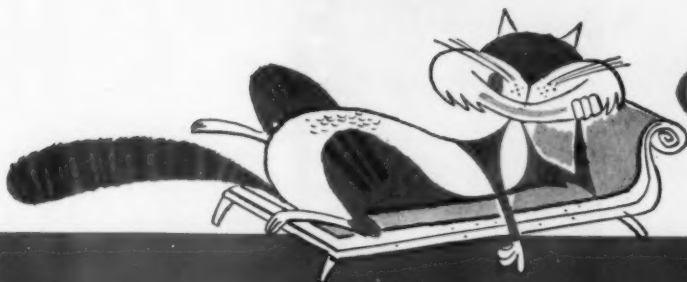
Glass for Skylights

TRANSLUCENT GLASS fiber reinforced plastic glazing material designed to reduce breakage and maintenance problems for skylights — Structoglas Div., International Molded Plastics, Inc., 4387 W. 35th St., Cleveland 9, O. Glazing is shatterproof, weather resistant and light weight (0.080 in. thick), according to the manufacturer. Glazing is said to reduce heat entry and glare without interfering with lighting efficiency; provide additional insulation; and increase inside visibility. Featuring pebble grain surface in standard sash sizes, panes are in green, blue or clear colors.

Heat Exchanger

"STAK HEAT-RECLAIMER" for oil or coal heating systems — Heat Reclaimer Mfg. Div., Dolin Metal Sales Corp., 315 Lexington Ave., Brooklyn 16, N.Y. Unit

(Continued on page 164)



"Quiet as a Kitten"

BRAND NEW FOR 1956!
SENSATIONAL COMPLETE LINE OF
Central Heating—Air Conditioning
(GAS-FIRED)

**A SIZE AND SHAPE FOR
 EASY INSTALLATION ANYWHERE**

**Your Silent Partners
 for Sales!**

**COMPLETE
 WITH TEN
 YEAR FACTORY
 WARRANTY**



LOBOY UNITS!

For basement
 or utility room



HORIZONTAL UNITS!

For attic,
 utility room, or crawl space

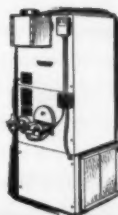


AIR CONDITIONING!

For use with all types forced air
 furnaces.

**COUNTER-FLOW
 UNITS!**

For closet or utility room



**HIBOY
 UNITS!**

For alcove,
 closet or utility room



A. G. A. APPROVED GAS-FIRED HEATING UNITS

FOR DETAILS

and specifications, clip
 this ad and mail it with
 your letterhead to
 Chattanooga Royal.

**CENTRAL HEATING
 AIR CONDITIONING**

**RECESSED WALL HEATERS
 SPACE HEATERS
 BARBECUE BRAZERS**



CHATTANOOGA ROYAL COMPANY

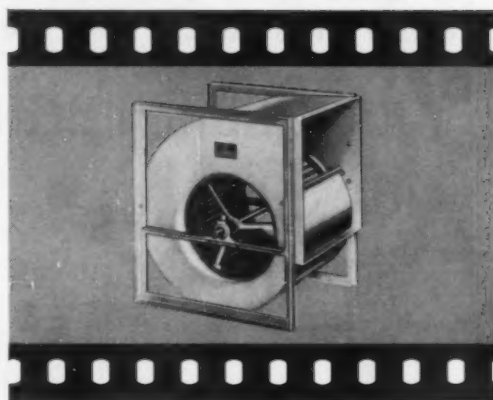
CHATTANOOGA 6, TENNESSEE

Quality since 1891

MAN OF MANY ROLES



FAN OF MANY ROLES



Remember Lon Chaney? He gave chills galore to silent film fans in "Phantom of the Opera"... moved from role to difficult role at the drop of an opera cloak, earning him his stage name, "Man of A Thousand Faces."

At Utility, we have a blower as nimble as Mr. Chaney at changing roles—at your "direction." Known off location as the 4-Way Discharge Blower, on location it positions quickly in any one of four positions—top horizontal, top vertical, bottom horizontal or bottom vertical. If we wanted to stretch a point, there are actually eight positions, since the fan faces left or right at any of the above angles.

The key to the stellar performance of Utility's 4-Way Discharge Blower is the rigid frame. You simply place the fan in the desired discharge position and the job is done, without bolts or screws or costly sheet metal work. This rigid frame also adds a bonus of strength and stability to the installation. Inventory-wise it makes sense. Available in single and double widths, this blower can take care of many jobs without emergency re-ordering or "hand fashioning" on the job.

The quality is there—and it's all Utility! One-piece wheel for rigidity, long life and super-quiet operation. And due to Utility's advanced production techniques, this "fan of many roles" is priced with the lowest. Proving again that when quality and price must get together, Utility is always the logical answer.

A Division of Utility Appliance Corp.

UTILITY FAN CORP

911 East 59th Street, Los Angeles 1, California



Manufacturers of heavy and standard duty blowers for heating, air conditioning and ventilating installations. Producers of blowers and blower parts for original equipment manufacturers. Write for catalogue data.



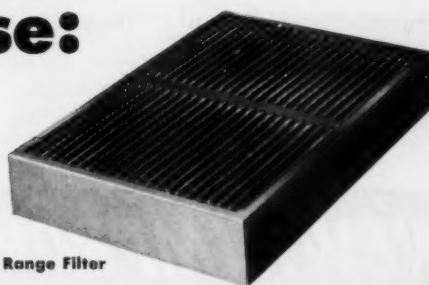
AAF Grease Filter

TWO kitchen filters with ONE purpose:

**protection from fire hazards and
high cleaning costs**

AAF puts *two* tried-and-true products—the Grease Filter and the Range Filter—on the all-important job of eliminating dangerous exhaust grease and reducing maintenance costs in the commercial kitchen.

The Grease Filter is for normal kitchen service. This all-metal filter contains $4\frac{1}{2}$ miles of woven wire media in a unique, vapor-trapping pyramid pocket design. Unit is furnished with individual holding frames or with housing arrangements spe-



AAF Range Filter

cially designed to provide increased filtering surface directly above grease-producing areas.

The Range Filter is for heavy duty, continuous service—where kitchens are operated practically 24 hours a day. It features filtering media consisting of seven stages of herringbone baffles, offering a large surface area on which grease is deposited.

Get all the facts on both filters in this new bulletin. Use the coupon.

AAF American Air Filter

COMPANY, INC.

355 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.



AAF Dust
Control Equipment



AMERglas Replaceable
Air Filters

BETTER AIR IS OUR BUSINESS

Herman Nelson
Propeller Fans



Herman Nelson
Unit Blowers



American Air Filter Company, Inc.
355 Central Avenue, Louisville, Ky.

Please send me Bulletin No. 204-A which describes AAF Grease and Range Filters for kitchen service.

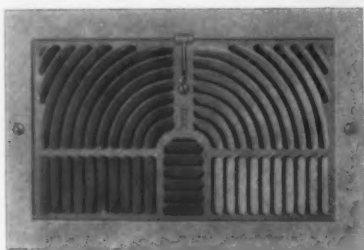
Name _____

Company _____

City _____ State _____

equipment developments (Continued)

installs in smoke stack near heating unit; heat rising in stack quickly heats 68 tube reclaimer core and a thermostatically controlled blower forces fresh air through the hot tubes. Standard duct attachments can be used to deliver the heat where needed. Unit consists of 350 deg thermostat control; motor and 140 cfm blower; heavy gage steel welded housing (10 in. stack opening); removable core with 68 air tight, spun end tubes; summer cover plate for use when core is removed; and spun adapters for all stack sizes.



Perimeter Sidewall Diffuser

"FANAIRE" SIDEWALL TYPE perimeter diffuser for heating or year 'round systems—Auer Register Co., 6600 Clement Ave., Cleveland 5. Unit can be installed close

to floor for upward, fan shaped air pattern, or upside down near ceiling for downward discharge. Diffuser is in 10×6, 12×4, and 12×6 in. sizes, and in base-board mounting models. Built-in damper provides control for system balancing.

Air Cooled Air Conditioner

"CENTRAL" AIR COOLED air conditioning unit in 2 and 3½ hp sizes, designed to cool homes up to 1500 sq ft and 2200 sq ft, respectively — Amana Refrigeration, Inc., Amana, Ia. Prefabricated duct work, air diffusers, return air grilles and outside attic vertical grilles are optional. Branch ducts are 8 × 8 in.; return air and supply ducts are 10 × 14 in., in 4 ft lengths. The 3½ hp unit has twin 1¾ hp compressors which operate concurrently or independently. Single motor powers condenser and evaporator fans. Low voltage thermostatic control for remote operation is standard equipment on both models.

Aluminum Solder

SOLDER FOR BONDING aluminum to copper, brass and other non-ferrous metals — Ultralloy Corp., 53 W. Jackson Blvd., Chicago 4. Solder requires no flux or special equipment and is corrosion and fade resistant, the company states. Copper content provides im-

NEW! IMPROVED! GENERAL FUEL OIL FILTERS

Models 1A-25A and 2A-700A Offer These New Features

IMPROVED
1A-25A

IMPROVED
2A-700A

DELUXE
2A-300

for big dirty jobs.
Depth-type, metal
encased cartridge.
Exclusive screw-
type handle release.

1. RESTYLED SEAL
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PREVENTS LEAKAGE

2. CUPPED RIM
IN BOWL FOR
EASIER SEALING

3. NEW BUNA
GASKET COMPOUND

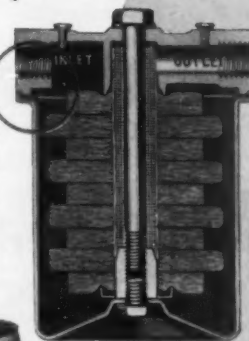
ABSOLUTELY LEAKPROOF

Won't Clog . . . Won't Crack

Complete restyling of the cap, seal, and gasket of General Filters 1A-25A and 2A-700A positively eliminates any danger of leakage or improper sealing. GENERAL'S CUPPED-RIM all-steel filter bowl holds the new BUNA gasket securely in place against the redesigned cast iron CAP SEAL . . . provides easier sealing . . . lifetime dependability!

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removes up to ½" layer of soot from any heating plant in 2-5 minutes! Non-corrosive, non-explosive. Made specially for General Filters.



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Are More Dependable
Than Ever!

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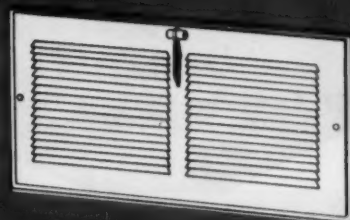
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More profit for *You* with **KALAMAZOO** Registers and Grilles

Stock Kalamazoo Sidewall Registers and Grilles for heating and air conditioning...



Plus Kalamazoo Baseboard Frames...



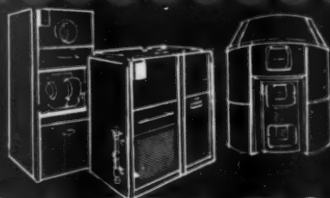
And you have units for BOTH Sidewall and Baseboard applications. You simply add the "E" frame to the sidewall unit for a streamlined, air-tight baseboard installation.

RESULTS: Your inventory is reduced by nearly 50% — important savings for you in time, effort, and expense!

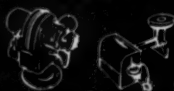
BUT THAT'S NOT ALL. Kalamazoo's new line of Registers and Grilles has a definite price advantage, too. Just check our Discount Schedule and you'll see! With Kalamazoo you enjoy the best margin of profit available, and we'll prove it.

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Burners



Air
Conditioners



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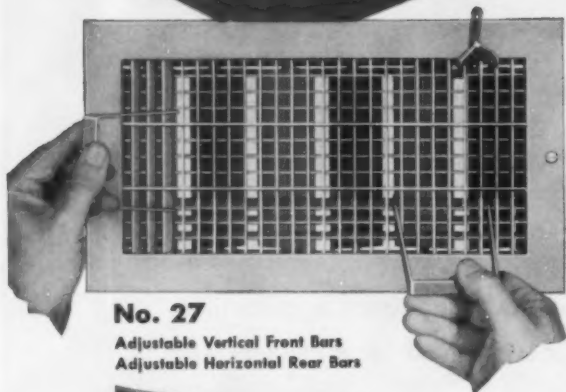
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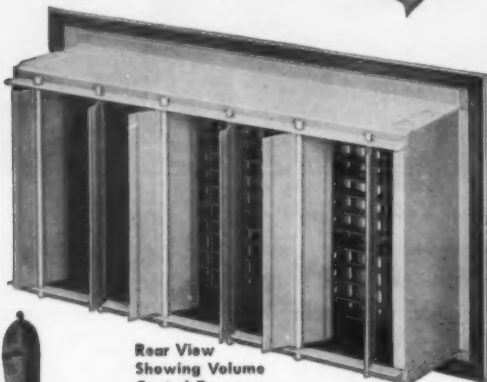
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equipment developments

(Continued)

proved conductivity; melting point is over 700 F. Other characteristics: 2500 to 3500 psi tensile strength in joints; 20 percent elongation in 2 in.

Magnetic Water Conditioner

WATER CONDITIONER designed to eliminate and prevent scale and corrosion formation in air conditioning systems by imparting added energy to the atoms in the water solution — Packard Water Conditioner Div., Inc., 2220 W. Beaver St., Jacksonville 9, Fla. Employing no moving parts, the conditioner is in sizes to handle from 6.5 to 1760 gpm, for connection with pipe sizes from 3/4 to 12 in.

Air Cooled Air Conditioners

SERIES SAAC AND SAR air cooled air conditioners in 2, 3 and 5 ton capacities — Shana Mfg. Inc., 188 W. Randolph St., Chicago 1. SAR series is blower driven, for indoor application, and features "Shana-Matic" couplings designed to eliminate necessity of refrigerant



charging in the field. Units can be installed in attics, crawl spaces, utility rooms, breezeways and garages. SAAC series uses propeller blade for outdoor application; condenser has air intake on 2 or 3 sides, and discharges through horizontal fan blade in 4 directions, the company states. Evaporator assemblies on both series include convertible design for horizontal or vertical installation.

Fuel Oil Gel Inhibitors

MIXTURES of "Santolene C" and "Santolene H" in ratios of 1:2 to 1:10 said to inhibit formation of copper mercaptide gel in fuel oil systems — Monsanto Chemical Co., 1700 S. Second St., St. Louis 4, Mo. When mercaptans react with copper in brass components of burners, a copper mercaptide is formed, which combines with fuel oil to produce a yellowish translucent gel that clogs filter screens, the company states. The two agents which combine to form the

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"Saturdays I help dad out at the store. Mostly cleaning and things like that. Most our customers come in on Saturday. Dad tells them a whole lot about Thatcher. He says there's a whole lot of good things to tell. Seems like nearly everybody ends up buying one. Yessir, Thatcher's a great line to handle . . . it must be, my dad says so!"

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Garwood, New Jersey

Branch office: 4646 W. Washington Blvd., Chicago, Ill.

The Oldest Name in Indoor Comfort

equipment developments

(Continued)

inhibitors were specifically designed to overcome screen and filter clogging and to inhibit rust and corrosion, according to the manufacturer.

Out-of-Wall Diffuser

No. 16 OUT-OF-THE-WALL diffuser designed for applications where stackhead and duct cannot be installed in the wall — Air Control Products, Inc., Coopers-



ville, Mich. Available in 10 × 6 and 12 × 6 in. models, unit is said to be especially applicable to concrete or cinder block applications or on certain older types of construction. Unit has a back section that fits against the wall with pre-cut hole in the bottom, and a diffuser which screws into the front.

Fire Venting Skylight

"FIRE-VENT" skylight with fuseable link which separates under extreme heat, causing cover section to open — Marco Co., 45 Greenwood Ave., East Orange, N.J. Unit is fabricated of fiber glass reinforced translucent structural panels set in extruded aluminum frame. Skylight has self contained curb and roof flange and is designed for installation directly to roof opening.

Welding Electrode

"FLEETWELD 37" E-6013 all-position electrode for welding sheet metal with a-c or d-c current — Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17. Designed for use where burn-through, sticking and poor fit-up are problems or when using low open circuit voltage welding machines, unit is said to have good arc stability. Drag technique may be used. Electrode is available in 1/8, 5/32 and 3/16 in. sizes.

Packaged Air Conditioners

LINE OF PACKAGED air conditioning units with chilled liquid or direct expansion cooling coils in 1 3/4, 3 and 5 hp sizes — Coleman Co., Inc., St. Francis and Second St., Wichita 1, Kans. "Air-Mist" wet bulb condenser utilizes extra cooling effect of evaporation,

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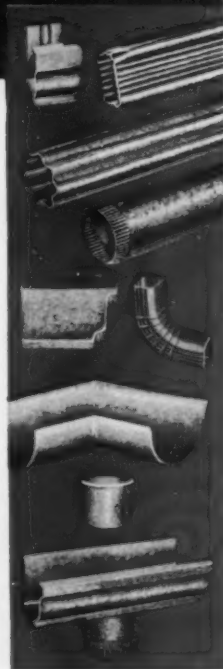
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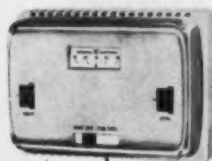
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any heating and cooling control system is all right when it's all General Controls

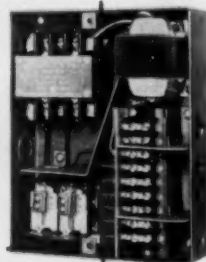
Sometimes the whole is greater than the sum of its parts. For example, when a heating and cooling control system is General Controls from first to last, you have the advantage of top quality in each part. And the added advantage of having each control component custom-engineered to work best with *every other* component. All this plus the incalculable advantage of knowing there is a single responsibility for perfect performance.

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K-25S



L-49

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equipment developments

(Continued)

the company reports. Air enters through grilles in the base, is mixed with fine water spray and blown over surface of the condensing coil. Water consumption is said to be about 3 gal per ton-hour. Air discharge is upward to provide for location of unit close to buildings and shrubbery.

Prefabricated Air Duct

"INSUL-PIPE" prefabricated round air duct designed for uniform thermal insulation and vapor barrier on ducts which pass through attic and crawl space — Coleman Co., Inc., St. Francis and Second St., Wichita 1, Kans. Duct is made of glass fiber and plastic; out-



side surface is covered with film of aluminum pigmented vinyl, second spray coat of phenolic prevents erosion of inner surfaces. Short metal expansion coupling joins straight sections; material can be mortised to fit around 45 and 90 deg elbows. Duct is fabricated in 6 ft lengths with nominal inside dimension of 3½ in. Section weighs under 2 lb. Manufactured by Gustin-Bacon Mfg. Co., Kansas City, Mo., the duct is said to have shown satisfactory results in tests of heat loss and gain, condensation and sound absorption, and to meet NAHB requirements.

Portable Nibbler

MODEL HN HEAVY DUTY portable nibbler designed for cutting heavy gage sheet metal — Fenway Machine Co., Edgemont and Clementine Sts., Philadelphia 34. Unit is designed to handle stainless steel to 10 gage, milder steels and non-ferrous metals to 8 gage. Nibbler will follow patterns or templates and will cut from any angle; it will also cut contoured or corrugated stock, the company reports. Minimum cutting radius is 6 in. Punch and die takes a ¼ in. slug of metal with each stroke; full load speed is 600 strokes per minute. Motor is universal type, about 1 hp.

Air Cooled Air Conditioners

MODEL 10ACCU 10 TON air cooled condensing unit and companion 10LSU 10 ton "Low Side" unit —

WATERLESS

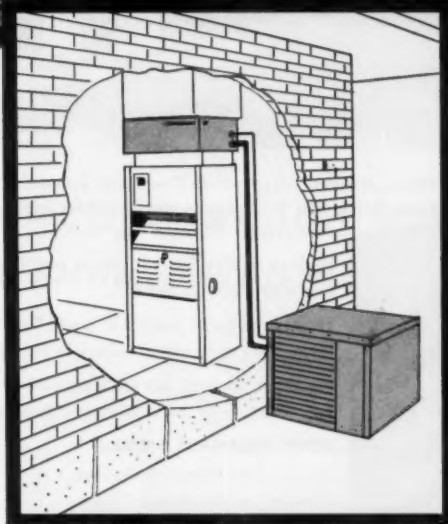
TYPHOON CONVERT-TO-COOL



SELL WARM AIR FURNACE OWNERS ON YEAR-ROUND AIR-CONDITIONING

Every warm air furnace is half an air conditioning system — so the sale is half made before you start. In fact, your own file of warm air installations is a ready-made prospect list for Typhoon Convert-to-Cool. Just show 'em how to enjoy year-round comfort for hundreds of dollars less than they ever expected to spend! And there's never a water problem with Typhoon — air-cooled units, backed by 46 years of engineering experience.

Simple, efficient operation Typhoon cooling coil goes on top of furnace and connects into present ducts. Compact refrigerating unit (only 3 feet square) is located at convenient spot outside the living area. Works on electricity alone. Air cooled — no water supply problem, no drainage problem, no plumbing, no sewer tax.



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Since 1909*

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Top Photo: The Heatwave Hi-Boy. Completely automatic. Built-in draft diverter. At Left: Heatwave Counter-Flo for perimeter and underfloor heating. Installed in closet, alcove or utility room. Minimum duct work.



Heatwave Gas Fired Furnaces and Central Heating Systems have a two-way claim to fame!

They make extra dollars of profit for the man who sells and installs them. They save extra dollars in fuel costs in the homes they serve!

No other furnace manufacturer offers such a fine opportunity for you to increase both sales and number of satisfied customers.

EVERY HEATWAVE MODEL:

- Factory Assembled
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THE HEAT WAVE FLOOR FURNACE

Here's the efficient whisper-quiet floor furnace that offers the utmost in service, economy and long life.

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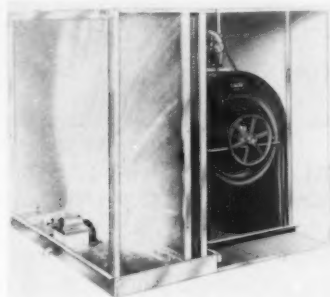


equipment developments

Typhoon Air Conditioning Co., Div., Hupp Corp., 505 Carroll St., Brooklyn 15. Condensing unit may be located anywhere outside conditioned area; air handling unit is suspended from wall or ceiling or recessed into the wall. Components include centrifugal blower and variable speed pulley; units can be used for conversion to year 'round air conditioning with warm air systems.

Evaporative Cooler

"AIR WASHER" type evaporative cooler in five sizes ranging from 4000 to 12,000 cfm capacities — Alton Mfg. Co., 1112 Ross Ave., Dallas 2. Fresh makeup air is pulled through



a water spray that is washed over a double set of filter mats. Hermetically sealed motor driven pumping unit is used on 4000 and 5500 cfm units; the 7000 to 12,000 cfm coolers are equipped with "aquasprae" pumping unit and double set of filter mats. Float valve mechanism automatically regulates evaporative water requirements.

Material Handling Blowers

MATERIAL HANDLING blowers in direct or V-belt drive, designed to exhaust industrial waste materials — Chicago Blower Corp., 9867 Pacific Ave., Franklin Park, Ill. Wheels are designed to meet a variety of needs; long shavings wheel handles long fibrous material, grinding dust, etc.; rim type wheel is for heavy material or higher speeds; wool wheel handles clinging fibrous materials. Six dif-



Barber "Spread-Heat": the conversion burner that heating men designed

When Barber set out to design "Spread-Heat" burners we checked first those things that heating contractors wanted most. We knew, you see, that the burner that is best for you is best for the home owner.

We first studied thousands of coal burning furnaces for their BTUH ranges and physical dimensions. And we managed to produce three burners that would cover practically the whole lot. Think of the fewer burners

you'll have to stock or order.

As a matter of fact, one "Spread-Heat", the UP-2, will convert 90% of all coal or wood burning furnaces itself. By careful selection of tube length and a telescoping venturi, the same three burners will physically fit most all furnaces too.

Then we put controls and air shutters in an enclosure where they'd be easy to install and service. Adjustable legs at both the control and burner end made it possible to

position the burner at just the right height in the furnace in a few seconds.

We added to these features the color we knew customers preferred, a wide selection of controls, and a price that would appeal. The result is a conversion burner for wood or coal furnaces that will mean more sales for you and more profits. Write today for specifications and prices on the "Spread-Heat" to the address below.

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equipment developments

ferent types of acid resistant coatings are said to meet any acid or fume condition. Units are available in 9 drive arrangements in two temperature classes; Class I is for 70 to 600 deg temperatures; Class II handles 601 to 1000 deg temperatures. Wheel diameters are from 9 1/2 to 60 1/2 in. Volumes range up to 50,540 cfm.

Room Air Conditioners

"COOLERATOR" line of room air conditioners with four directional grilles and concealed control panels — Lonergan Mfg. Div., McGraw Electric Co., 704 N. Clark St., Albion, Mich. Flush mounted "Super" 3/4 hp model handles rooms up to 440 sq ft; 1 hp unit handles up to 600 sq ft and is thermostatically controlled; both are 15 3/4 x 26 3/8 x 23 15/16 in. "Custom" line consists of 3/4 hp model for rooms to 480 sq ft; 1 hp unit for rooms to 660 sq ft; and 2 hp unit for rooms to 1010 sq ft. The 2 hp unit is 26 3/8 x 17 3/4 x 29 15/16 in.; others are same size as "Super" models. Other equipment includes dehumidifier with 1/5 hp compressor and four window fans in 20 and 24 in. sizes.

Closet Furnaces

TWO GAS FIRED furnace models rated at 75,000 and 85,000 Btu and designed for closet installation — D. P. Ran Appliance Corp., 1202 N. Alameda, Compton, Calif. Units are 14 1/4 in. wide, 28 1/4 in. deep and 64 1/2 in. high; both have 4 in. vents. Cast iron burner and clam shell type heating elements are balanced to eliminate resonant noise and roaring, the company reports. Furnaces are available with direct or belt drive; both have 24 volt control system or self-generating system. Blowers and motors are on sliding shelves.

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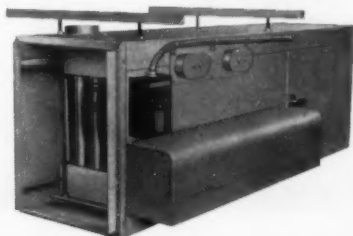
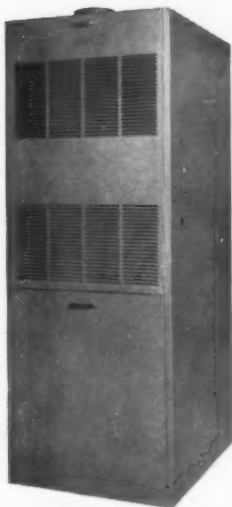
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Cozy Horizontal Forced Air models available in five capacities, 60,000 BTU to 140,000 BTU input. This space- and money-saver can be installed in attic, utility room, under floor...even without basement.



The Cozy Challenger, the best buy in floor furnaces, has accessible controls.



Cozy Wall Heaters available in four capacities, single or dual wall installation; three different temperature controls are optional.

Compact upflow and counterflow Cozy Forced Air models give zero clearance; let you use 4" piping or conventional ductwork. Has exclusive Heat Wringer, Heat Exchanger. Adaptable for air conditioning. 75,000, 105,000, 140,000 BTU input capacities.



The ADVANCE FURNACE CO.
WICHITA, KANSAS

COZY

bigger filter in PREMIER furnace cleaners doesn't need cleaning before the can is full



In furnace cleaning, it's not the size of the can; it's the efficiency of the filter* that counts. Now, for the first time, a full $\frac{1}{2}$ bushel-capacity cleaner! You can do a perfect job and never have to worry about lugging cleaning equipment around. Notice that this machine is only $\frac{1}{2}$ the size of ordinary cleaners.

PREMIER's giant pleated filter has 3 times more working filtering area than other makes. This means you don't have to clean the filter so often either. 2 out of 3 filter-cleaning interruptions are avoided. Jobs go faster. You make more profit per job.

"OLD RELIABLE"—famous Premier furnace and air conditioning cleaner (P-908F) now also available with this new auxiliary filter. For information on *all* Premier furnace and air conditioning cleaners, write today for Folder FB14.

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35 Gerrard St. West, Toronto, Canada

equipment developments

etc. — Speco, Inc., 7308 Associate Ave., Cleveland 9. Designed for use in confined areas, the solvent is said to have cleaning properties closely resembling carbon tetrachloride but with much less toxicity. Solution is also fireproof. Adaptable for cold, bucket or dip cleaning, the solution is packaged in portable 5 gal. container with metal tray that can be raised or lowered, or in standard 1 gal. cans and 55 gal. drums.

Heating, Cooling Line

GAS FIRED furnace, 2, 2½, 3 and 5 ton air cooled air conditioners, water cooled units and outside thermostat lines — General Electric Co., 5 Lawrence St., Bloomfield, N.J. Gas fired



furnace has cast iron heat exchanger, direct drive blower with adjustable speed control and increased capacity blower for highboy models. Air conditioners have remote air cooled condenser-blower unit, spring-mounted compressor and acoustically insulated cabinet; the 5 ton unit is package model. Units are in single phase power or for three phase in 3 larger units. Water cooled units feature redesigned control box and controls; capillary tubes to replace expansion valve; tube-in-tube condenser. Outdoor control indicates weather changes to indoor unit via 25 volt circuit.

Quarter Inch Drill

"SHOPMATE" ¼ in. drill with split aluminum housing which permits all parts to be assembled in one rigid

half — Portable Electric Tools, Inc., 320 W. 83rd St., Chicago 20. Split arrangement is designed to provide good alignment for the armature. Drill is rated at 2 amp, 1600 rpm with a-c, d-c motor. Chuck type drill has pistol grip with trigger switch. Drilling capacity is ¼ in. steel, ½ in. hardwood.

Germicidal Lamp

"GERMITROL" ultra-violet energy germicidal lamp unit for installation in heating, air conditioning and ventilating ductwork — Everett Engineering Co., 300 S. Second St., Abilene, Tex. Stainless steel unit plugs into 110-120 volt, 60 cycle a-c circuit, uses 15-w hot cathode lamps. Lamp holder can be mounted at dual angles for maximum ultraviolet output. Dimensions of tube holder in duct are 18 in. overall plus ballast and starter case (3 × 3 × 6 in.). Unit is installed by cutting hole in duct, screwing unit in place and plugging in. Ultraviolet output is said to be 38 microwatts per sq cm at one meter; rated life of lamp is approximately 14,000 hr, based on continuous operation.

Remote Air Conditioners

AIR CONDITIONERS in 2, 3 and 5 ton capacities with remote compressors and adaptable for use with city water, tower water, evaporative or air cooled condensing units — Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1, O. Insulated cabinet contains filters, multipath cooling coil, thermostatic valve, centrifugal blower and motor; Model XD "Meter-Miser" compressor can be installed at any remote location.

Tinners' Snips

MODELS 10, 11 AND 111 adjustable tinners' snips which can be set to comply with the hand pressure of the user — W. H. Compton Shear Co., 314 Camden St., Newark 3, N.J. Adjustable screw, concealed flush nut and lock spring permit variation of leverage tension. Model 10 makes a 2½ in. cut and 11 in. snip; No. 11, a 2¼

how PREMIER furnace cleaners cut your labor-time costs



Labor-time takes 90% of your maintenance cleaning costs. PREMIER saves you money because it reduces that time. Here's how:

1 You spend less time on each job because of special pleated filter design. The filters in PREMIER machines are 3 times larger than others . . . 3 times more working-filter area than other makes. This saves time . . . boosts profit of each job. Notice this machine is half the size of ordinary cleaners, yet holds a full half bushel.

2 PREMIER equipment is practically maintenance-free because their special built motors are well ventilated to run cooler. Extra air flow over the motor is possible also by the exclusive "3-times larger" filter. This means longer motor life.

3 All models are completely equipped with standard attachments. Special tools for out-of-the-ordinary jobs are also available.

PREMIER YOUR BEST BUY

4 Low initial cost due to high volume of sales. Fine engineering design born of years of experience have made PREMIER machines the preference of cleaning men.

5 Listed by Underwriters' Laboratories and Canadian Standard Ass'n.

"OLD RELIABLE"—first and most famous Premier furnace and air-conditioning cleaner (P-908F) with external filter bag for "hot jobs" now also is available with new 3-times-larger internal filter. For information on all Premier furnace and air conditioning cleaners, write today for Folder FB14.



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Dept. 406

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35 Gerrard St. West, Toronto, Canada

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improved Skuttle
 standard home humidifier



Model 600 B
 Vapoglas
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THESE **Skuttle** FEATURES MEAN SALES

FLEXIBLE, ALL-PURPOSE: For use with sloping curved bonnets or straight plenums in gravity or forced air heating plants.

QUICK INSTALLATION: Only one hole in plenum needed. Installation averages under 30 minutes.

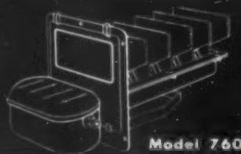
BUILT-IN QUALITY: Acid and alkali resisting glass lined pan and float chamber. Leakproof glass float. Nickel and chrome plating used on other vital parts. Corrosion resistant.

LESS AIR STREAM RESISTANCE: Patented Vapoglas plates insure more moisture output. More evaporating area per dollar.

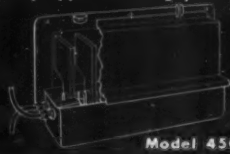
For further information, write to:



There's a Skuttle humidifier for every type heating plant



Model 760



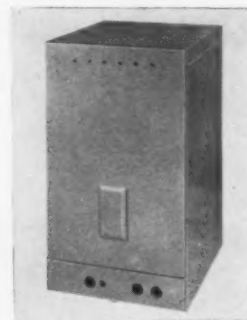
Model 450

equipment developments

in. cut and 9 in. snip; No. 111, a 2 in. cut and 7½ in. snip. Implements are drop forged of bar steel, have welded blades and blue finish handles.

Add-On Air Conditioner

MODEL GB-21B central air conditioning unit in 2 ton capacity, designed for homes with warm air heating ducts — Gibson Refrigerator Co.,



515 W. Williams, Greenville, Mich. Water cooled unit has replaceable fiber filter, spring mounted sealed compressor unit and gray enamel cabinet 45 in. high, 25 in. wide and 30 in. deep which requires 5.2 sq ft of floor space.

Furnaces, Air Conditioners

THREE HIGHBOY and three lowboy gas fired furnaces with inputs of 80,000, 100,000 and 125,000; and two remote air cooled air conditioners — Roberts-Gordon Appliance Corp., 44 Central Ave., Buffalo 6, N.Y. The two larger furnace models are also available in oil fired units. Featured in furnaces are single port, chrome alloy "Spreader-Flame" burners; die formed heat exchanger designed for maximum heat extraction; double inlet centrifugal blower which is rubber mounted and equipped with thermal overload protection. Models 2 and 3 GAR air conditioners in 2 and 3 ton capacities are designed for use with highboy and lowboy furnace models. Models "D" and "F" cooling coils are designed for vertical flow through the evap-

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you've got
to figure

Tight

—You can use unskilled labor
to make absolutely non-binding
louver dampers with the

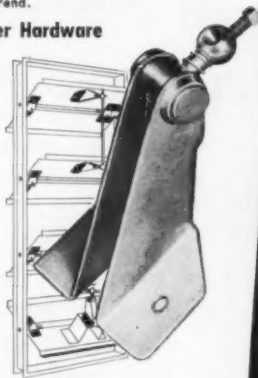
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Precision-Engineered Damper Hardware

Permits smoothly operating, non-binding louver dampers to be assembled with little care and no alignment afterward. The Neva Bind Duro-Blade Kit's unique 4-way adjustability automatically compensates for inaccuracies in damper construction, thereby preventing undue stress or bending of the connecting rod, the main cause of damper binding. Neva Bind Duro-Blade Kits cost no more than old type kits.



Each Neva Bind Duro-Blade Kit contains:
1 Neva Bind Duro-Bracket, 1 pair self-oiling
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dampers with the Sensational *New*

Jiffy Damper



JDS Series—With Spring-Loc

JD Series—No Spring-Loc

Complete, prefabricated, inexpensive dampers ready for immediate installation in ductwork. A comparable damper made in the shop costs considerably more. The Jiffy Damper consists of the famous **PARKER-KALON** Jiffy Regulator (now made by Duro-Dyne) preattached to a galvanized iron blade. Steel threaded bearing can't break. No loose parts to rattle.

Two styles are available: JDS Series has patented Spring-Loc for keeping damper in perfect position under high air velocities. JD Series—same as JDS but without Spring-Loc. For Six Duct Sizes: 4", 5", 6", 7", 8", 9"; Special sizes and shapes also available.

—You can make flexible connectors
up to 3 times faster with Duro-Dyne's

Complete line of flexible Connector Materials

Duro-Metal-Fab: Preassembled metal-to-fabric-to-metal. Saves expense of attaching metal to fabric. Exclusive Double-Loc Seam prevents fabric pulling out while braking, or being cut when connector vibrates on the job.

Generous metal dimensions 3" and 4" full usable, fabric dimension over 3" exposed. Metal is 24- or 26-gauge galvanized iron. Choice of fabrics includes U. L.-Approved Canvas, Asbestos or Neoprened Fiberglass. Packed 50 ft. or 100 ft. to handy Dispense-Flat carton.

Econ-O-Fab: Considerably lower price, but same quality and construction as Duro-Metal-Fab. Lighter metal and fabric for residential work and lighter gauge ductwork. Same generous metal and fabric dimensions. Includes Double-Loc Seam. Same choice of fabrics. Packed 50 ft. or 100 ft. to handy Dispense-Flat carton

Duct Fabric: Quality fabrics without metal. For special jobs where contractor must fabricate connectors from fabric and metal cut to size. Following fabrics are supplied in 100 ft. rolls packed in handy dispenser cartons: Canvas, U. L.-Approved—6" or 10" widths. Asbestos, Heavy Grade—6" width. Neoprened Fiberglass—6" width.



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Available in 2, 3
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Available in 2-3-4-6
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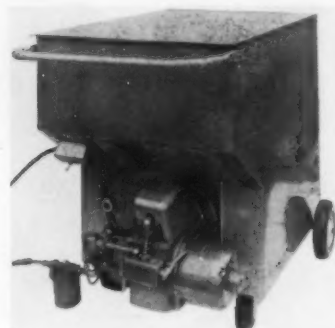
Others—Please Specify _____

equipment developments

orator; "S" model is for horizontal flow. Sealed compressor unit, twin air cooled condensers and centrifugal blower are housed in heavy gage steel enclosure.

Portable Space Heater

PORTABLE OIL FIRED heating unit for small homes, storage rooms, etc., rated at 100,000 Btu capacity — Quiet Automatic Oil Burner Corp., 33



Bloomfield Ave., Newark 4, N.J. Features listed by the manufacturer: burns no. 2 fuel oil, has electric ignition; circulates warm air with small electric fan; can be plugged into any electric outlet.

Vacuum Cleaner

"NEVER-CLOG" furnace vacuum cleaner said to be clog-proof — Pullman Vacuum Cleaner Corp., 31-39 Allerton St., Boston 19, Mass. Secondary filter resists soot, soot acids, alkalis, rot, mildew and fire, the company states. A complete set of attachments is standard equipment with the cleaners.

Room Air Conditioner

"KOOL-A-BOUT" room air conditioner in 3/4 ton (10,300 Btu) capacity, designed for operation anywhere in the room — Whitehall Engineering Co., 506 N. Dearborn St., Chicago 10. Cabinet is 31 x 19 x 18 in., is mounted on four ball bearing casters for mobility, has sloping top to provide air distribution with-



Bethcon is better to work, better to look at

Sheet-metal jobs like this one are being made better these days with Bethcon, product of Bethlehem's continuous galvanizing lines. One of the chief advantages of continuous galvanizing is the superior bond between zinc coating and base metal, which permits severe forming without damage to the galvanized finish. You can actually bend Bethcon double without cracking or peeling of the zinc.

Another "plus" is the improved appearance and sales appeal of the finished product. Continuous galvanizing gives Bethcon brighter, more uniform spangles. It also distributes the zinc more evenly over the sheet, eliminating the heavy

beads usually found on the drip ends of galvanized sheets.

You can specify Bethcon in cut sheets or coiled lengths, 16-gage or lighter. You can also choose between plain and corrosion-resisting copper-bearing steel for the base metal, depending on your requirements. Any additional information you would like to have about Bethcon will be gladly furnished by the Bethlehem sales office nearest you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

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"Hopeless" cooling problems are easily and economically solved with PALM-AIRE or SNO-BREZE evaporative air coolers. Great volumes of filtered, cooled air clear out sweltering heat in large-area hot spots. Research *proves* that morale and working capacity go up as the temperature goes down . . . an installation soon pays for itself in startling production increases!

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BOOKLET--
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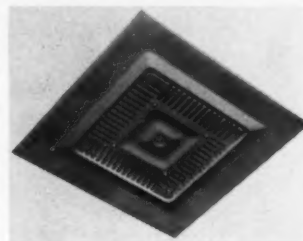


equipment developments

out draft, and has push-button control panel and thermostat on right side. Unit weighs 164 lb.

Ceiling Air Diffuser

MODIFIED "KNO-DRAFT" ceiling air diffuser designed to prevent removal of the unit and tampering — Connor Engineering Corp., 500 Fifth Ave., New York 36. Designed for institutions, sanatoriums and other places



where tampering may be encountered, the unit is mounted flush against the ceiling with air discharge through slots which fit firmly against the outlet plate; outlet presents unbroken exterior to discourage attempts at damage. Capacity and performance are same as for standard models.

Room Air Conditioner

"SUPREME" MODEL $\frac{3}{4}$ hp, $7\frac{1}{2}$ amp room air conditioner which plugs into any 110 volt outlet—Fedders-Quigan Corp., 57 Tonawanda St., Buffalo 7, N. Y. Decreased amperage is designed to relieve overloaded circuits. Unit also features "weather wheel" arrangement which permits 360 deg control of direction of air flow. Other equipment released includes "Electronic Purifier" electrostatic filter designed to remove smoke and impurities from the atmosphere.

Air Conditioning Coil

FURNACE BONNET air conditioning coil designed to convert forced air furnace duct systems to summer cooling — Refrigeration Appliances, Inc., 903 W. Lake St., Chicago 7. Three models are in 24,000,

NEW *Humphrey* RADIANTFIRE CIRCULATORS

FOR 1956 FEATURE

"TOPTROL"

THE NEW FINGER-TIP TOP CONTROL

Cool... Convenient... Safe

A Great New Convenience for the User

A Wonderful New Sales Feature for You

TOPTROL is the most exciting new sales feature in the gas heater field! The **top-mounted** heat control that breaks the control barrier and provides conveniences of operation never before offered on this type of heater.

TOPTROL eliminates squatting and squinting to adjust gas valve or thermostatic control inside the heater. Now, for the first time, Mrs. Housewife can dial the heat she wants, from table-height, as easily as turning on a radio!

TOPTROL the NEW Humphrey feature that appeals to all buyers—that gives you a competitive sales advantage over all other brands—that's sure to increase your sales and profits on the Humphrey line.

TOPTROL is standard equipment on all 1956 Humphrey Radiantfire Circulators either manually or thermostatically controlled.

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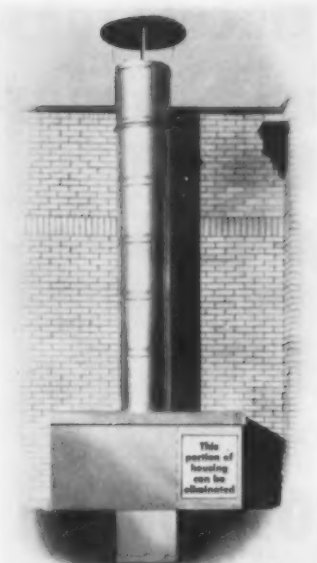
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Humphrey **RADIANTFIRE
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WITH **"TOPTROL"**



**POWER DRAFT WITHOUT FANS
OR MOTORS IN SMOKE LINE**



Commercial models for smoke outlet diameters 12, 14, 16, 18, 20, 22, 24 and 30 inches.



Residential models for smoke outlet diameters 4, 6, 7, 8, 9 and 10 inches.

POWER DRAFT *Makes the difference!*

Quickdraft WITH 12-FT. VENT PIPE
ELIMINATES 65-FT. CHIMNEY FOR

Bill's Commissary
North Canton, Ohio

Appearance, efficiency and economy . . . are the advantages Bill's Commissary gained by venting a gas fired steam boiler at roof level with a QUICKDRAFT commercial power draft unit. The unsightly appearance of a 65 ft. chimney towering above a one-story building, was eliminated. For safety and maximum efficiency, gas cannot be turned on in this 2,250,000 Btu boiler until after full draft has been established. In addition, Quickdraft was selected to overcome the 0.1 in. (1/10") negative pressure within the building that could be caused by exhaust fans over ovens and ranges, in event of failure of warm air fans in heat changer. These advantages, unobtainable by gravity draft, were most important on this installation. In addition, power draft venting cost \$2,598.00 *LESS* than a 65 ft. chimney.

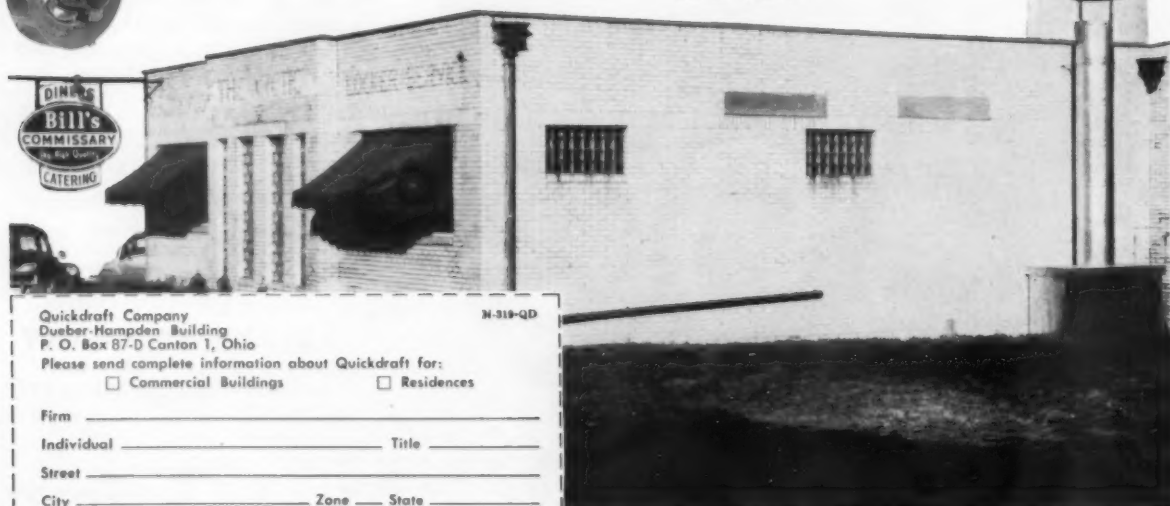
This installation is typical of the advantages Quickdraft offers for residential as well as commercial installations. A standard 22 in. Quickdraft unit was used . . . housing and pipe can be built by local sheet metal contractor. Write for complete details and engineering data.

QUICKDRAFT HAS MANY USES

Venting commercial and residential heating plants . . . exhausting noxious and abrasive industrial fumes . . . with or without a chimney! Recommendations will be made without obligation upon receipt of rough sketch, notes on fuel used, unit input capacity, size of exhaust outlet, length, height and clear inside area of vent line.

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equipment developments

(Continued)

36,000 and 60,000 Btuh capacities. Unit is in V-bank coil arrangement; tubing is copper electro tin plated; fins are multi-tube heavy gage aluminum, the company reports.

Gas Fired Highboy Furnace

MODEL JFG-O gas fired highboy furnace rated at 95,000 Btu input, designed primarily for builders — Heil Co., 3000 W. Montana St., Milwaukee 1, Wis. Suitable for installation in closet or alcove, the unit occupies



about 4 sq ft of floor space; serviceable parts are accessible from the front and return air duct may be connected to base or to either side. Featured is two tone jacket of gray and blue-green with louvered access panel to protect the unit's fully enclosed burner. All models are factory assembled and wired, according to the manufacturer.

Air Cooled Air Conditioners

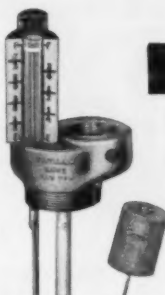
AIR COOLED remote air conditioners in 2 hp, 21,000 Btuh, and 5 ton, 60,000 Btuh models — Marvair Div., Muncie Gear Works, Inc., 700 N. Wysox, Muncie, Ind. Each model has condenser-compressor section which can be installed anywhere within 60 ft of the cooling section. "Oversize" air coil in condenser is said to give satisfactory heat exchange performance up to 120 F outdoor temperature. Compressor is in an insulated cabinet with the condenser section; sirocco type fan is designed to further reduce noise. Evaporator sections have 4 row coil assembly. "A" type is installed directly above or below any counterflow or highboy furnace and needs no separate blower or filters; horizontal air flow unit may be located in main furnace duct, in attic or closet using its own duct work, or as a free hanging unit with filter and blower. Four way louvers are standard equipment. All controls are in watertight housings within the condenser cabinet, the company states. Line is designed for residential as well as commercial applications.

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UNDERWRITER'S APPROVED

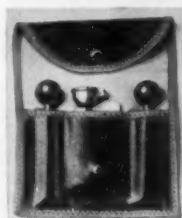


One labor-saving unit combining the famous VENTALARM Whistling Tank Fill Signal with a tank gauge. One item to install, instead of three! Unit case acts as a reducer. Sizes: VG-A, 2" x 1 1/4". VG-B, 1 1/2" x 1 1/4".

Specify tank depth when ordering.

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Designed for fast accurate 3-dimensional adjustment of burner electrodes. Gauge cup slips over burner nozzle. Permits setting by degree angles or by inch measurement method. Special electrode benders included. All in a handy pouch kit.

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Guarantees full venting. Floating screen guards against insect clogging. Clutch-head screw locks cap on pipe, making it theft-proof. Size: 1 1/4". Handy-Pack of 6 to a box.

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new literature . . .

Ratings for Home Air Conditioners

ARI INTERIM STANDARD 620-56, Published Ratings for Residential Air Conditioners (25 cents) defines the method of arriving at published ratings for residential air conditioners — Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., N. W., Washington 6, D. C. The standard outlines the four types of residential air conditioning equipment to which it applies and states that cooling capacity ratings shall be based on tests conducted in accordance with ASRE Standard 16-56 to include total cooling capacity rating stated in Btu per hr at the ASRE standard rating conditions as applied to both water cooled and air cooled units and covers input ratings and tolerances. The standard does not apply to room air conditioners or heat pumps.

Heating and Cooling Units

BOOKLET entitled Making the Weather Behave presents the features of combination heating-cooling units, add-on cooling units, and gas and oil fired highboy, lowboy, horizontal, counterflow and gravity furnaces — Mueller Climatrol, 2005 W. Oklahoma Ave., Milwaukee 15. The booklet is available in two forms — one with a 16 page insert containing specifications

and dimensions for distribution to dealers, architects and builders and the other without the specifications insert which is designed for consumer distribution.

Fans for High Velocity Applications

CATALOG DS-348-C covers "Class III" fans designed for high velocity air conditioning systems — The Trane Co., La Crosse, Wis. The fans are also suitable for industrial use. Air capacity ratings range in static pressure from 5 through 11½ in. in ½ in. increments, with a total high pressure limit at 12¼ in. The fans are catalogued in single and double width arrangements, in sizes 18 through 73. Send requests on company letterhead.

Control Parts

CONTROL PARTS CATALOG lists supplies used in repair and rebuilding of oil burner, gas burner, stoker and heating controls — Bert Cowan Co., Dept. AA, 852 Rogers Ave., Brooklyn 26, N. Y. Also listed are heaters, relay and transformer coils, resistors, etc.

Aluminum Mill Products

INFORMATION on aluminum mill products and services is contained in a 24 page booklet — Kaiser Aluminum & Chemical Corp., Industrial Service Div., PR 256,

Vitroliner Prefab Chimneys Offer Complete Flexibility

5 DIAMETERS—for all types of installations —from ranch houses to 2 story homes, commercial and industrial buildings.
FOR ALL FUELS—oil, gas, coal and wood.
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THE STANDARD Housing is available in a Flat Surface Finish, factory painted a solid grey, or a red or buff "Brick Effect" Finish, that looks like real brick.
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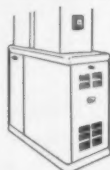
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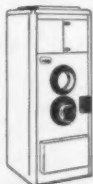
TORIDHEET

Rotary Wall Flame Oil Burners

Power These
Fuel-Thrifty
Units



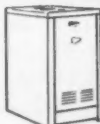
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Winter Air-Conditioner



Model ORD
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Model ORA
Hi-Boy



Model ORU
Boiler



Model ORM
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You make useful friends out of customers when you sell time-tested TORIDHEET Rotary Wall-Flame equipment. The operation is so reliable and quiet, the fuel economy so great, that customers tell friends and neighbors—actually become part-time salesmen for you.

Proved fuel savings up to 40% and trouble-free operation (only 1 moving part) make TORIDHEET a profitable line for you

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**yourself a bigger
share of the pie!**

Now, "one time" installation customers can be turned into steady customers by adding furnace cleaning to the services you offer.

When you offer a cleaning service, you're back in that cellar . . . and that's when you can sell that customer repairs and new installations or sign him up for oil sales.

Pullman Never-Clog® Vacs are the choice of professional furnace cleaners because they're dependable. The multi-stage turbine fans scoop up stubborn soot, scale, ash and debris quickly, efficiently. Performance is *guaranteed* because Pullman's Never-Clog® Vac with its special double filter system . . . never clogs under any cleaning conditions. Truly portable.

Standard Equipment At No Extra Cost

- 27" metal crevice tool.
- Power blower nozzle.
- Handy scraper tool.
- Flexible metal asbestos packed hose.
- 10', 1½" I.D. heavy duty hose.

**You're IN with
a dependable . . .**

**Pullman
NEVER-CLOG®**

PULLMAN VACUUM CLEANER CORP.
25 Buick Street, Boston 15, Mass.

AA-10

Rush me complete details on how the Pullman Never-Clog® Vac will give me a "bigger share" of the pie.

Name _____

Company _____

Address _____

City _____

State _____



new literature

(Continued)

1924 Broadway, Oakland 12, Calif. The brochure offers data on aluminum alloys, forms, mechanical and physical properties, applications, fabricating and finishing techniques and availability. Products described include sheet, plate, rod, bar, forgings, extrusions, roofing and siding and shade screening.

Air Conditioning Supplies

WHOLESALE CATALOG for air conditioning dealers illustrates and describes over 10,000 items including electric motors, parts, etc. — The Harry Alter Co., Dept. G, 1728 S. Michigan Ave., Chicago. Ask for "Dependabook" on company letterhead.

Central Air Conditioning Systems

FACTS ABOUT CENTRAL air conditioning are presented in a booklet entitled *If It's More Comfort You Want* — Perfection Industries Div., Hupp Corp., 7609 Platt Ave., Cleveland 4. The booklet lists some of the advantages of year 'round air conditioning, discusses the proper sizing of equipment, and tells how the system operates.

Gas Fired Highboy

GAS FIRED "PARKWAY" highboy winter air conditioners, rated at 95,000 Btu input, are described in Bulletin AH-56500 — The Heil Co., 3000 W. Montana St., Milwaukee 1. Offered primarily as a builders' unit, the furnace is compactly designed, competitively priced and suitable for installation in many small and medium size homes. It occupies a little more than 4 sq ft of floor space, is completely factory-assembled and factory wired. All serviceable parts are accessible from the front of the unit, and the return air duct may be connected to the base or to either side.

Centrifugal Blowers

BULLETIN 102 contains technical specifications on "IPF" unplasticized rigid polyvinyl chloride blowers — Industrial Plastic Fabricators Inc., Endicott St., Norwood, Mass. The blowers are designed to withstand most chemical fumes and polluted air in a temperature range of 40 to 140 F. They are available in four impeller diameters: 9½, 13¾, 19 and 27 in. Performance tables cover models which provide a range from 143 to 7722 cfm. Chemical resistance charts are also included.

Flexible Metal Ducting

BULLETIN 12-EB-2 gives engineering information on "Thermaflex" laminated flexible metal ducting de-



From the makers of famous
Universal Gas Ranges . . .

the first really new home heater in 20 years!

***So revolutionary it guarantees constant
floor-to-ceiling comfort at all times . . .
just like costly central heating!***

No more customer complaints about cold floors and burning hot ceilings. Never another nasty word about drafty-off-and-on heat blasts. The new Universal *Constant Comfort* Gas Heater brings the most modern central heating principle of *constant heat circulation* to "space heater" homes. Automatically maintains even temperatures throughout the rooms at all times. Yet it costs *less* than some ordinary "space heaters" and requires no extra installation.

New sales appeal in every new feature!

Never in home heating history has there been a heater with so many features customers have long hungered for. Fiberglass insulated cabinet, always cool and safe to touch. Beautiful new space-saving design. Complete air filter system—and many more that make the newest "space heater" you've seen old-fashioned.

Rush the coupon for details today!

National advertising is all set for the early Fall selling season. The replacement market alone will be tremendous *plus* fast-growing new demand for use in motels, house trailers, recreation rooms and hundreds of other locations. You can't afford to miss a moment of it. So act *now*.



the new
Universal
**CONSTANT
COMFORT
GAS HEATER**

for LP or city gas



Never before a
GUARANTEE
like this!

Cribben and Sexton Company guarantees the Universal Constant Comfort Gas Heater (when used in proper size for space to be heated) will out-perform any heater now sold in maintaining constantly comfortable temperatures from floor to ceiling.

Products of
Cribben & Sexton



Universal
Gas
Ranges

Universal
Automatic Gas
Clothes Dryers



Universal
Consum-all Gas
Incinerators

Cribben & Sexton Co. 700 N. Sacramento Blvd., Chicago 12, Ill.

Gentlemen: Please rush complete information about the special money-saving advantages of placing my Universal Constant Comfort Gas Heater order now.

your name _____

firm name _____

street address _____

city _____ zone _____ state _____

new literature

(Continued)

signed for use as "run-outs" in both high and low pressure air conditioning systems — Flexible Tubing Corp., Guilford, Conn. Dimensions and physical characteristics of the ducting in diameters from 2 to 12 in. are given. A chart graphs the friction loss per 100 ft in inches of water gage at various velocities in cu ft of air per minute.

Year 'Round Air Conditioning

CONSUMER BOOKLET illustrates and describes the features of year 'round home air conditioners — Worthington Corp., Harrison, N. J. Advantages provided such as cleanliness, comfortable sleeping conditions and finger tip control are described, and typical installations in basements, closets and garages are illustrated with line drawings. Cutaway views show components of both heating and cooling units.

Arc Welders

THE FEATURES of "Idealarc" arc welders designed to produce four types of arc—a-c or d-c soft arc and a-c or d-c forceful arc—are described in Bulletin 1343—The Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17. Photographs show the unit as used for down-

hand position work, for intermittent work and on jobs where there is poor fit-up. Features claimed include constant current output, simplicity of installation, and no-voltage protection. Optional features are power factor correction, low-voltage contactor, standard accessory set, and 115 volt push button circuit.

Multi-V Belt Care and Maintenance

ILLUSTRATED MANUAL on the care and maintenance of industrial V belts covers the following topics: designing the new drive; double matching; installation of belts; how V belts grip; importance of tension; drive alignment; how to clean; and storage—The B. F. Goodrich Co., Industrial Products Div., Akron, O. A V belt service chart which illustrates typical causes of belt failure is featured. Photographs show what belts look like after failure due to various causes and ways to prevent such causes are outlined. Also available is a data sheet covering multi-V belts featuring grommet construction. Included is a chart showing standard and high capacity V belt numbers, sizes and pitch lengths.

Glass Fiber Insulation

FOLDER WAF-1 describes "Microlite" and "Super-Fine" glass fiber insulation for heat control and sound absorption—L.O.F Glass Fibers Co., 1819 Madi-

NO DOUBT ABOUT IT!

The most complete line on today's market.

BRANDES*

WALL BASE HEATING

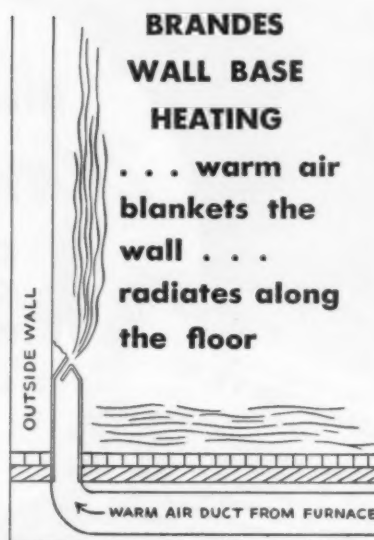
Those who have exacting Wall Base Heating requirements are sure to find just the right sized model in Brandes' expanded new line. Three distinct lines and a total of fourteen different sizes to choose from gives Brandes the most complete selection on the market today. With Brandes' Wall Base Heating you get the utmost in beauty and performance . . . at reasonable prices, too!

*PATENTED

THE BRANDES COMPANY

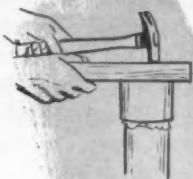
2046 WINNEBAGO STREET, MADISON 4, WISCONSIN

WRITE FOR CATALOG



For fast, economical installation
**... use time-tested Transite,
 standard for the Industry**

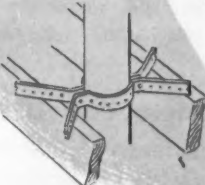
Installing



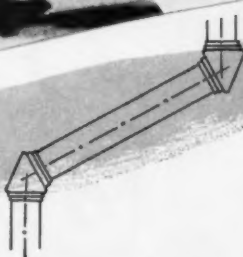
Supporting



Bracing



Planning



**It saves in many ways—
 New booklet shows how!**

Transite® Gas Vent Pipe, for venting domestic gas-burning appliances, enjoys nation-wide acceptance among heating engineers, plumbing and heating contractors, architects and code officials. With it and its full line of round and oval fittings, you can meet—economically and efficiently—the requirements of practically every job. Both Type B and Type B-W carry the Underwriters' Laboratories symbol, the Type B being the only pipe of its kind bearing that mark of approval continuously since 1932.

In a new 28-page extensively illustrated booklet, you will find detailed information about the entire line of Transite Gas Vent products, its installation and perform-

ance advantages. Photographs show simplicity of pipe assembly. Center line dimensions make layouts easy to "rough in." Diagrams provide helpful hints on supporting and bracing. Cross-sectional drawings on all fittings give design data. Chart illustrates ease of following rules of good venting. Complete tables give sizes, weights and dimensions. Send the coupon for your copy today.



Johns-Manville
TRANSITE GAS VENT PIPE
 an asbestos-cement product

Johns-Manville, Box 60, New York 16, N. Y.
 Please send me your new booklet TR-119A, "Transite Gas Vent Pipe."

Name _____ Title _____

Company _____

Street address _____

City _____ Zone _____ State _____

NEW RADIANT direct oil fired WATER HEATERS...

GLASS-LINED... model GL-30

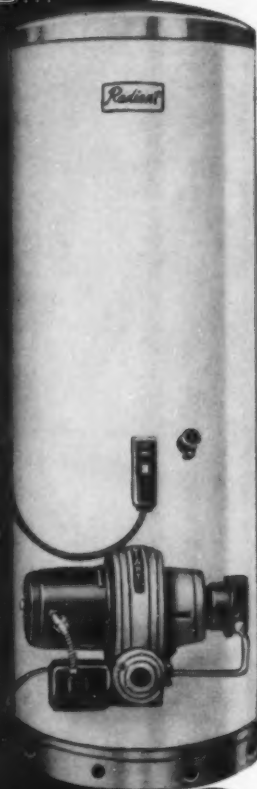
FOR HOTTER WATER—
CLEANER, FASTER!

- ▶ Glass-lined boiler-plate steel tank will withstand Hydrostatic pressure of 300 lbs. psi.
- ▶ Heavy-duty Fibreglas insulation prevents heat loss.
- ▶ Magnesium anode assures rust-free water.

COPPER... model CP-30

FOR MAXIMUM EFFICIENCY—
LONGER LIFE!

- ▶ Features solid copper tank encased in heavy-gauge high strength steel to withstand Hydrostatic test pressure of 525 lbs. psi.
- ▶ Cleaner water assured... always flows through Never-Rust copper.
- ▶ No heat loss — heavy Fibreglas insulation completely covers the tank.



STYLED FOR STREAMLINED GOOD LOOKS!

You'll like the attractive baked enamel finish and smart custom styling of both new Radiant hot water heaters. They blend with the decor of modern kitchens and recreation rooms.

LOWER COST HOT WATER!

Both new Radiant hot water heaters are equipped with famous Radiant Oil Burners for efficient oil firing... for heating water at lower cost.

Write for complete literature on all Radiant products.

RADIANT UTILITIES CORP.

8817 18th Ave., Brooklyn 14, N. Y.

new literature

(Continued)

son Ave., Toledo 1. Charts explain acoustical performance and thermal conductivity, and a table shows widths and thicknesses available. When used as duct covering, any of the customary fastening methods—adhesives or clips—may be used as required. As duct liner, the insulation absorbs noise and vibration from fans and motors and helps prevent noise transmission from one room to another through the duct.

Gas Pilot Valve

BULLETIN No. 212 gives data on gas pilot valves available with or without throttle adjustment—Thermac Co., 800 E. 108th St., Los Angeles 59. The valve consists of a brass body and aluminum plug and is made in four principal models with connections for 1/8 in. NPT by 1/4 in. compression and with 3/16 in. gas way connections.

Flexible Duct

BULLETIN 60 gives information on flexible duct for use in moving air, dust, fumes, etc. by pressure, suction or gravity—The Flexaust Co., 100 Park Ave., New York 17. The duct may be used for elbows and lead-in ducts in air conditioning; for exhausting welding fumes; for collecting dust from grinders; and for furnace cleaning. Additional neoprene coatings are available to increase resistance to weathering and to provide air sealing at higher pressures.

Metal Protective Coating

FOLDER describes "Rubalt" red primer suitable for coating cooling towers, exposed ductwork, ventilating systems, etc.—Alfred Hague & Co., Inc., 227 34th St., Brooklyn 32. The primer protects steel, iron, galvanized iron, porous surfaces, etc. It may be applied by brush, spray or roller.

Hole Punching Equipment

PUNCH PRODUCTS catalog describes and illustrates "Unipunch" unitized hole punching and notching equipment—Punch Products Corp., 3800 Highland Ave., Niagara Falls, N. Y. Series A perforating units for press and press brake setups punch round or shaped holes in sheets or angles up to 1/4 in. thick. These units have a shut height of 8 3/8 in. and die height of 3 1/2 in. Series B units punch round and shaped holes in metal up to 1/8 in. thick and have a 5 1/2 in. shut height with 2 19/32 in. die height. This series is designed for presses having relatively small strokes that cannot accept the 8 3/8 in. shut height of Series A units. Press and press brake mounting equipment for unitized tooling is also covered.

Blowers and Fans

BULLETIN SPE-103 describes material handling blowers designed for removing waste materials such as sawdust, shavings, and dust from grinding and buffing wheels as well as conveying and handling hot air and gases in industrial processes—Chicago Blower Corp., 9869 Pacific Ave., Franklin Park, Ill. Three special wheel types are designed to give maximum efficiency and length of service. Also available is bulletin A-102 describing "Airfoil" centrifugal fans. The fans are engineered around a backward curved, non-overloading type centrifugal wheel utilizing a hollow sectioned, aerodynamic shaped airfoil blade. This blade design is said to provide an even, smooth flow of air, entirely eliminating eddy currents that create turbulence and noise. The fans are especially applicable to forced and induced draft systems such as those used in high pressure air conditioning, according to the company.

Self Contained Air Conditioning Units

SELF CONTAINED air conditioning systems are described in a 36 page illustrated booklet—United States Air Conditioning Corp., 3300 Como Ave., S. E., Minneapolis 14. The booklet traces the history of comfort cooling in non-technical terms from the days of the Romans and discusses the evolution of present day techniques. Discussing the basic components of central air conditioning, it describes the operation of the refrigeration cycle and its application in central air conditioning systems. It then explains how the same principles have been applied to the development of the company's "RK" unit. A three page pull-out shows the treatment of a building using the "RK" system.

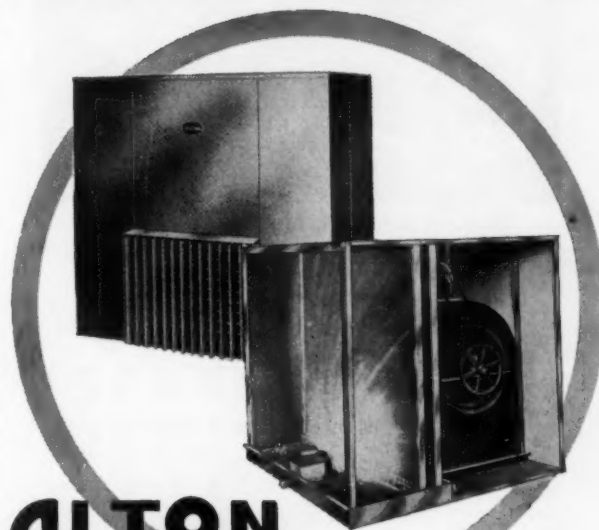
Centrifugal Fans

BULLETIN C-102 gives details of backward and forward curved centrifugal fans — Chicago Blower Corp., 9869 Pacific Ave., Franklin Park, Ill. Both types are available with direct or V-belt drive. Performance tables are included. Address requests on company letterhead.

Brazing Aluminum

PRACTICAL SHOP DATA and recent developments in aluminum brazing are presented in a 134 page, illustrated book — Aluminum Company of America, 774 Alcoa Bldg., Pittsburgh 19. Data is included on relative suitability for joining and typical mechanical properties of wrought and casting alloys. Tables present information on the composition and melting range of parent metals and filler alloys; melting range and use of brazing fluxes; properties of brazing sheet, etc. Address requests on company letterhead.

Better COOLERS for the BIGGEST MARKET



ALTON airwasher type EVAPORATIVE COOLER

Investigate the huge untapped source of air conditioning sales. The NEW market of plants, factories, and laundries, where high cost refrigeration is not warranted, is ready for low cost ALTON EVAPORATIVE COOLERS. The Alton is engineered for maximum circulation of cool fresh air . . . is built to last . . . operates very economically . . . is effective in all climates. Seize your ALTON sales' opportunities today.

***Latex-Coated Filters** (Alton Exclusive) deliver cleaner, cool air faster, more steadily.

***Aquasprae Unit** wets all the filtermat surface effectively.

***Squirrel Cage Blower** distributes maximum quantities of fresh air uniformly.

WRITE US FOR THE FACTS
DEALER TERRITORIES AVAILABLE

ALTON MANUFACTURING COMPANY
1112 Ross Avenue, Dallas, Texas

NAME
BUSINESS NAME
ADDRESS
CITY STATE

we hear that . . .



WILLIAM J. LEVITT (right) studies residential air conditioning methods with Cloud Wampler, chairman and president of Carrier Corp. The control panel records tests of residential equipment under development in Carrier's "Research House" laboratory

► **CLOUD WAMPLER**, chairman and president of Carrier Corp., has signed a contract with Levitt & Sons, Inc. providing for the installation of "Weathermaker" central air conditioning systems in 702 homes to be

built in Levittown, Pa. Mr. Wampler described the contract as the air conditioning industry's "major breakthrough into the volume housing market." He said the builder's decision to make air conditioning standard equipment "will have a profound effect on the entire home building industry. It may well establish central air conditioning as a 'must' for all volume builders in the future."

► **A-P CONTROLS CORP.** has merged with Soreng Products Corp. The new corporation will be known as Controls Corp. of America and will be headed by Roy W. Johnson, president of A-P, as chairman of the board, and Louis Putze, president of the Soreng firm, as president. The two companies will retain their individual identities and will continue to operate as divisions, under their present names.

Willis W. Mansfield has been elected vice president and director of manufacturing of the Soreng Div. Before joining the division, Mr. Mansfield was associated with Penn Controls for 22 years.

► **OLIN MATHIESON CHEMICAL CORP.** plans to enter the aluminum industry with an initial investment of \$120,000,000 — approximately \$90,000,000 for an aluminum plant and \$30,000,000 for power facilities. The alumina plant, the reduction plant and the rolling mill will be located on the Ohio river near Clarington, O. The power plant will be upstream on the West

Conductor L. Bow says:



GIVE YOUR CUSTOMERS
THE BEST ELBOWS AVAILABLE...
CINCINNATI ELBOWS!! HOT-DIPPED IN
ZINC AFTER FORMATION TO GIVE LONG-
ER RUST-RESISTING LIFE — SHAPED
AND TAPERED TO FIT ANY STANDARD
SIZE PIPE — AVAILABLE IN ANY SIZE,
ANGLE, GAUGE OR METAL, INCLUDING
COPPER, ALUMINUM, STAINLESS
OR GALVANIZED STEEL —
ASK YOUR JOBBER!!

CINCINNATI ELBOW CO.

4730 MADISON ROAD • CINCINNATI 27, OHIO



Virginia side at Cresap Bottom and will be connected to the aluminum facilities by a high tension transmission line. According to Thomas S. Nichols, president, the new operation will mark the first time in the history of the aluminum industry when coal mined directly on the site is used to provide the large power requirements for the reduction of alumina to pig aluminum.

► THE GENERAL ELECTRIC CO. is conducting a series of three day classes on the application and servicing of home heating and cooling equipment for distributors, dealers and independent servicers. By the end of April, schools will have been held in over 111 cities in the United States and Canada, and more than 12,000 persons will have participated in the training program. The schools are conducted by local distributors in cooperation with G. E. field and factory representatives.

► MORRISON STEEL PRODUCTS, INC. has acquired Packaged Comfort Heat, Inc. of Cleveland. A division for the new operation has been set up in the Morrison plant in Buffalo. Samuel S. Robinson, former president of Packaged Comfort, has been named manager of the new division.

► NEW HORIZONS was the theme of the first of Crane Co.'s district sales meetings held Feb. 7-8 at the Edgewater Beach hotel, Chicago. Approximately 350 branch and district managers and their salesmen participated in an elaborate program featuring cartoons, skits and timely discussions by Crane officials, slanted toward training, selling and promotion. A feature was a take-off on the radio-TV show, "This Is Your Life," honoring a mythical heating salesman and tracing his selling career from a dismal beginning through his attendance at a sales school from which he emerged a polished — and wealthy — salesman. The same program was held at other district meetings in Atlanta Feb. 13-14, Pittsburgh, March 1-2, San Francisco March 12-13 and Tulsa March 19-20.

► ALWIN B. NEWTON, chief design engineer and member of the board of directors of the Coleman Co., has been named vice president in charge of the company's design and research activities. In this capacity he succeeds Boyd W. Tullis, who has reached retirement age but will remain with the firm as special assistant to the president. Mr. Newton, who has been with the company for three years, was formerly vice president of Acme Industries, Inc.

► OVER 100 DISTRIBUTORS and distributor personnel from the eastern, southeastern and central sales regions attended a recent regional sales meeting held by Bryant Div. of Carrier Corp. New products were



**OVER 400
BURNERS
REPLACED WITH
THIS
FUEL
SAVER**



LO-BLAST ECONOMITE

POWER GAS CONVERSION BURNER

In the small home development of 472 homes in Marquette Heights, near Peoria, Illinois, illustrated above, Lo-BLAST Economite Power Gas Burners replaced oil burners originally installed. The reasons are evident when the trouble-free performance and economy of the Economite are considered.

Power burner design assures perfect combustion, regardless of natural draft conditions—*saves an average of 10% in fuel*—ideal for down-draft heating plants. The Economite burns so smoothly you can't tell when it's running.

Every Economite is factory-tested on gas and shipped assembled, fully equipped with fool-proof safety.

Lo-BLAST Power Gas Burners are available in capacities from 70,000 to 20,000,000 BTU input. Write for literature.

**MID-CONTINENT
METAL PRODUCTS CO.**
1960 N. Clybourn Ave., Chicago 14, Ill.

we hear that

(Continued)

presented and advertising plans for the year were discussed. Guest of honor was Richard N. Jones, advertising director of House and Home magazine, who spoke on "The Home Building Industry in Transition."

► PRODUCTION of its three millionth glass lined water heater was celebrated on Valentine Day by A.O. Smith Corp. with a review of the company's progress in developing its water heater line from "a wide place in the pipeline with a fire under it" to the current glass-fused-to-steel models. Representatives of national and regional manufacturers, utilities, press and others also heard the firm's production story in the Permaglas Div. plant in Kankakee, Ill., which is currently said to produce an average of 50,000 glass lined water heaters a month.

► THE AIRTEMP DIV., Chrysler Corp., in cooperation with affiliated distributors, sponsored over 50 special schools during January and February for distributor personnel, dealers, retail salesmen and servicemen. Additional schools will be held throughout the year in connection with the division's expanded 1956 training program. According to J. A. Clarke, director of sales training, the schools serve a twofold purpose. "First, the men who participate will be fully acquainted with all the most recent developments on the

part of Airtemp and of the air conditioning industry. Secondly, familiarized with up to date training procedures, distributors and dealers will be able to conduct, and more effectively, a greater number of school programs on their own behalf."

► THE ALLAN MFG. CO. has formed an air conditioning division that will operate under the name of Allan Air Products Corp. and will be located in Hicksville, L.I., N.Y.

► HUNTER MORRISON has been elected to the newly created office of chairman of the board of Morrison Products Inc. His son, Thompson Morrison, was elected president, and his other son, Hunter Morrison, Jr., executive vice president. Other new officers are Al Galaba, vice president, engineering; R. W. Lowe, treasurer and assistant secretary; and Spencer Colett, secretary.

► THE TOTAL of Sid Harvey's sales of rebuilt controls for oil and gas burners for 1955 was 20 percent greater than for the previous year.

► WOODFORD D. MILLER, vice president and general manager of the Robertshaw Thermostat Div., Robertshaw-Fulton Controls Co., has been made executive vice president in charge of the company's eastern operations. Frank H. Post succeeds Mr. Miller as



Your Dependable Source of Supply for . . .



**Air Conditioning and Heating
Pre-Fabricated**

DUCT and FITTINGS

MAXWELL STEEL COMPANY

P. O. Drawer 230

Fort Worth 1, Texas

we hear that

(Continued)

vice president and general manager of the division. George Mertz has been appointed assistant to the division's general manager. Jean V. Giesler, an executive vice president of the company, retired on February 1 as general manager of the Fulton Sylphon Div., in which capacity he is being succeeded by Freeman G. Cross.



AN INSTRUCTOR points out the features of a Mueller Climatrol unit to sales representatives

► MUELLER CLIMATROL held a week-long heating and air conditioning school just before its recent three-day sales conference. Forty national sales representatives and regional managers were in attendance.

► JAMES F. LINCOLN, chairman of the board of the Lincoln Electric Co., reports that since 1933 approximately \$58,800,000 has been distributed in incentive pay. Approximately \$5,900,000 has been paid to purchase retirement annuities for all employees. These two make a total of \$64,700,000 for workers over and above their regular pay.

► IRON FIREMAN MFG. CO. recently held three district sales manager conferences — one in Cleveland, one in Toronto and the third in Portland, Ore. Purpose of the meetings was to announce 1956 sales plans and to inform the field managers of new heating and cooling equipment available.

► THIS YEAR the Du Pont Co. will present more than \$900,000 to over 100 universities and colleges — an increase of \$100,000 over total grants made last year in the company's annual program of aid to education.

► YORK CORP.'s southwest district, with headquarters in Houston, received the "Veep Award" — a silver cup filled with champagne — "for outstanding overall performance during 1954-55" at ceremonies held recently at the firm's home office in York, Pa. The award is



... the "completely automatic" home incinerator



Inciner gives you more . . .

Profitable Dealer Advantages

- Above-average profits
- Unlimited prospects
- No costly trade-ins
- Top-brand name
- Increased gas equipment sales
- Strong utility support

more . . .

Powerful Sales Features

- Downdraft principle assures complete incineration.
- Completely automatic operation with "Incinitrol." Set it and forget it.
- Full 2-bushel capacity.
- Complete safety—fully A.G.A. approved.
- Fiberglass insulation.
- Lifetime porcelain top cover and lid.

Write for details today!

A.G.A.
APPROVED



BOWSER, INC.
INCINERATION DIVISION
SALES OFFICES: 1335 W. RANDOLPH, CHICAGO, ILLINOIS
Factory: Cairo, Illinois
Pioneers in gas-fired incineration

Contractors!

Your ADELTA Jobber Offers

A COMPLETELY CARTONED LINE

- material comes to you cleaner
- less chance of damage
- easier to store, easier to count

ORIGINAL FITTINGS

- the one-piece snap-lock cleat
- universal take-offs
- pre-notched collars

PROMPT SERVICE

- complete inventory
- immediate deliveries
- complete catalog service
- prestige line

Original ADELTA ideas, service and the finest in standardized pipe, duct and fittings help take the work out of ductwork . . . let you get more heating and air conditioning jobs done, more profitably.

See your ADELTA jobber today



ADELTA MANUFACTURING CO., INC.

21st & Ellsworth Sts., Phila. 46, Pa.
PEnnypacker 5-7843



we hear that

(Continued)

not given to an individual, but to all the people in the district — district office personnel, distributors, dealers, and salesmen.

► **NATIONAL LOCK CO.** plans the construction of a \$5,000,000 screw and bolt plant on the outskirts of Rockford, Ill. Completion is scheduled for the fall of 1957. The new plant will contain approximately 600,000 sq ft and will increase the company's total factory floor area to 1,600,000 sq ft, according to A. J. Strandquist, president and general manager.

► **THE DIRECTORS** of Rheem Mfg. Co. have elected Donald L. Rheem, a co-founder of the company, chairman of the board. He formerly was executive vice president and will be succeeded in that post by A. Lightfoot Walker.

► **BRUCE BALLMAN** has been named executive vice president and general manager of Dahlstrom Machine Works. Mr. Ballman was formerly associated with Ryerson Steel Co. and Harnischfeger Corp.

► **UNITED STATES AIR CONDITIONING CORP.** recently held sales promotion meetings in Houston, San Antonio and other cities in the South and Southwest. Some 500 distributors and dealer-contractors attending heard Frank D. Klein, southwest regional sales manager, C. S. Kessler, national service manager, and local representatives describe sales plans for 1956.

► **COBELL INDUSTRIES, INC.,** Ft. Worth, Texas has begun production of 3 and 5 ton gas fueled condensing units for air conditioning.

► **THE AMERICAN COUNCIL** to Improve Our Neighborhoods (ACTION) is sponsoring a home information center in Cleveland in conjunction with Cleveland's "Operation Demonstrate." Staffed by architectural students from Western Reserve university, the center offers free advice to interested persons on how to improve their homes.

► **VICTOR MAUCK**, who has been associated with the John Wood Co. for 65 years, has retired from its board of directors. Mr. Mauck bought the company from his uncle in 1899. Under his leadership, it grew from about \$65,000 annually to today's volume of about \$40,000,000.

► **PLANS FOR AN EXPANDED LINE** of fans and blowers and increased production volume are under way at The Peerless Electric Co., with production starting in the firm's new \$350,000 fan and blower division plant. Walter A. Curtis, manager of the division, said that the new plant would enable the company to eventually double production capacity.



WALTER BLAKE (right), dealer sales manager for the U. S. Machine Div., Stewart-Warner Corp., presents an engraved wrist watch to Everett Agan in recognition of his achievements as "salesman of the year"

► EVERETT AGAN, Indianapolis was named "salesman of the year" by U. S. Machine Div., Stewart-Warner Corp. A combination of qualities and accomplishments, including dealer recruitment, initiative, dealer relations, relations with factory departments, etc., provides the basis for the selection according to Walter Blake, dealer sales manager for the division.

► DON V. PETRONE, former president of Typhoon Air Conditioning Co., Inc., has been elected a director of the Hupp Corp. Also elected a director was James F. Dailey of Typhoon Prop-R-Temp Corp. William H. Haag, vice president of the Hupp firm's Perfection Industries Div., was elected vice president for manufacturing, and Mr. Petrone was elected vice president for sales of the corporation.

► THE WATERMAN-WATERBURY Co. recently began a series of nationwide three day marketing schools. First of the schools was held in Boston. The meetings emphasize basic selling techniques, principles of retail marketing, advantages of quality equipment, etc.

► CRUCIBLE STEEL Co. of America plans the installation at its Midland, Pa. works of a \$2,500,000 mill for cold rolling stainless and titanium strip to thinner gages than the company has previously produced. The installation is scheduled for completion in 1957.

► THE ROCKWELL MFG. Co. is adding three new plants to its facilities to meet higher production requirements. Two 100,000 sq ft plants have gone into construction in recent months — one at Russellville, Ky. and the other at Porterville, Calif. — and the company is negotiating for the purchase of a third plant. During 1955, according to Willard F. Rockwell, Jr., president, the company's expansion pro-

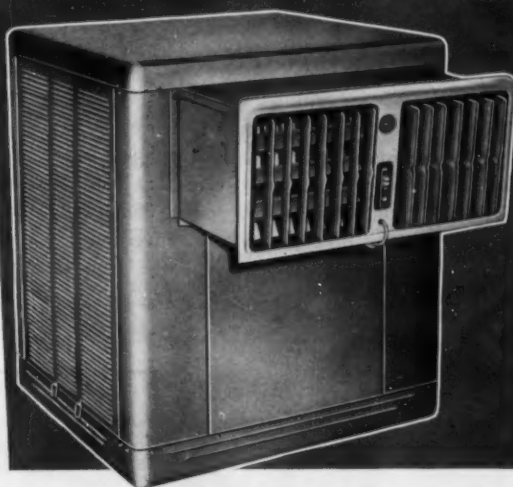
for business

for industry

for homes

the most refreshing
cooling systems
in the world are

ChillAir
EVAPORATIVE COOLERS



MODELS 30WP, 32WP, 40WP, 42WT

LARGE COMMERCIAL COOLERS

duplicating in office, plant or home the wonderful, healthful freshness of early morning... at the lowest operating cost, the easiest installation!

If you're a contractor or distributor, you'll be interested! Let us send you full information...

National Engineering

& MANUFACTURING, INC.
Sales Division
SEDALIA, MISSOURI

NATIONAL ENGINEERING & MANUFACTURING COMPANY
SEDALIA, MISSOURI
Gentlemen:

I am interested in further information on CHILL-AIR FANS.
DEALER AND DISTRIBUTOR INQUIRY INVITED.

☐ I AM A DEALER ☐ I AM A DISTRIBUTOR

NAME _____

STORE NAME _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____

AA 1-56

we hear that

(Continued)

gram included the opening of a meter repair center at Atlanta, the improvement of production facilities in six of its plants, and the enlargement of its central research and engineering facilities at Pittsburgh.

► THE LIMA REGISTER CO. is building a new plant two miles west of its present location at Lima, O. When completed, the new plant will provide approximately 72,000 sq ft of production area and 6000 sq ft of office space in one building.

► A 17,000 SQ FT ADDITION to the Azusa, Calif. plant of the Lau Blower Co. has recently been completed. The California plant is now producing grilles and registers and plans to begin the production of blowers and blower parts in the near future.

► BORG-WARNER CORP. was recently honored as the "Company of the Month" for January 1956 by the Henry George School of Social Science. In announcing the citation, Edward W. Jochim, president of the school's board of trustees, stated that Borg-Warner is the 18th company to be cited as illustrating "the functioning and high purposes of an economy based on the integrity, the freedom, and the aspirations of the individual."

► THE 7,000,000TH hydraulic action control manufactured by the White-Rodgers Electric Co. recently came off the production line. In honor of the occasion, which marked more than 18 years of control production, the "milestone" control was 24-karat gold-plated.

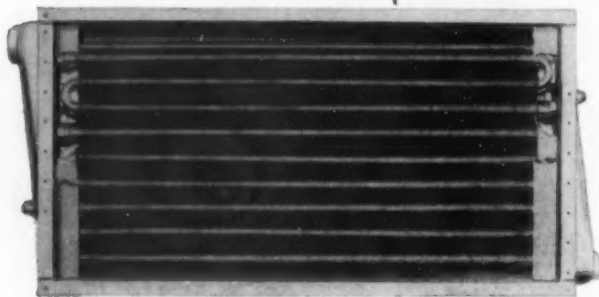
► THE DUC-PAC DIV. Swett Bros. has begun construction of a new plant in East Longmeadow, Mass. which will house expanded facilities for producing unassembled duct and duct fittings. The new plant is located on a railroad siding and will have a truck loading platform.

► DR. O. L. BARNEBEY, president of the Barnebey-Cheney Co., recently began a four month trip around the world in search of new sources of supply for nut shells which form the raw materials for the company's activated charcoals. Dr. Barnebey will also lecture at numerous universities on the subject of air and gas purification.

► THOMPSON AND CO. has completed a 7000 sq ft warehouse adjacent to the company plant. The new building will make possible the use of more space in plant working areas formerly used for storage. More production facilities will be installed and larger inventories will be carried.

We Make

Extended-Surface



AeroFin is sold only by manufacturers of fan system apparatus. List on request.

HEAT EXCHANGERS
Exclusively!

The pioneer in the field, AeroFin has concentrated on one thing, *and one thing only*—highly efficient, easily installed, easily maintained extended-surface heat exchangers. AeroFin's design, research, engineering and production experience and facilities are unequalled anywhere.

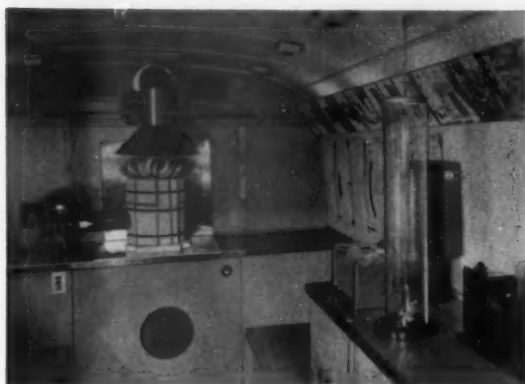
**For High Efficiency, Easy Installation,
Low Maintenance and Servicing Costs . . .**

ASK THE AEROFIN MAN

AEROFIN CORPORATION

101 Greenway Avenue
Syracuse 1, N. Y.

merchandising ideas



A LIVE FLAME demonstration of an oil burner actually under fire is one of the exhibits in the Webster Electric Co.'s "Caravan of Service"

► THE WEBSTER ELECTRIC CO. is carrying demonstration equipment to heating dealers throughout the country in a large van which has been converted into a showroom. Working exhibits of oil burner systems are designed to show inside-the-fire operations, and company engineers and salesmen traveling with the display furnish information regarding installation and maintenance of the equipment.

► WASHINGTON'S BIRTHDAY — February 22 — was the date of a series of nationwide Crane Co. luncheon parties for heating dealers and their wives. The parties were sponsored by company branches and wholesalers. Highlights were a motion picture in color entitled "The Changing American Market" and a sound slide film, also in color. During the meeting a co-operative advertising plan was offered to the dealers consisting of three large advertisements for local newspapers as well as animated store signs featuring life-size pictures of individual dealers' faces.

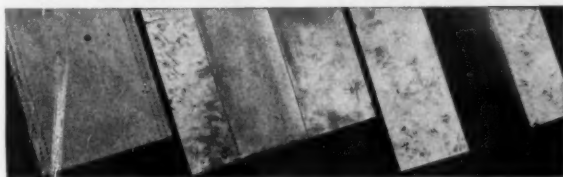
► STEWART INDUSTRIES INC. has developed a "Kitchen-Aire" range hood display consisting of a cabinet fitted with copper hardware and featuring metal swatches of range hood finishes mounted on the door. Designed to be hung on a wall, the display is 45 in. long, 19 in. high and 19 in. deep. Mounted on it is a ventilator, 36 in. brushed copper hood and under hood light wired and ready for plug-in demonstration.

► DISTRICT MANAGERS of the Armstrong Furnace Co. are using station wagons to carry demonstration units to prospective customers. Mounted on runners in the beds of the automobiles are complete condensing units and evaporator sections of the company's two ton air cooled residential air conditioners. The units are mounted so they can easily be pulled into full view on the tail gates of the wagons.

Which

TYPE*

Do YOU Prefer?



FLEXI-DUCT VIBRA-STOP

***Grant Wilson**
FLEXIBLE DUCT CONNECTIONS

Stop system noise on Heating, Ventilating and Air Conditioning installations. Isolate mechanical rattles, starting vibrations, "on and off" cycle sounds, shaft whine, fan hum, etc. at their source. Apply either of the Grant Wilson Flexible Duct Connections between blower or plenum and furnace casing, between take-offs and main or branches . . . the resultant quietness of system operation satisfies customers, leads to more jobs, without call-backs.

FLEXI-DUCT . . .

Grant Wilson's Woven Asbestos Flexible Tape. *The choice of those who want rock-bottom economy combined with top efficiency.* Handy 50 foot rolls, 6 inches wide, and 150 foot rolls, 8 in. wide, both with selvaged edges. Can be taped or bolted to equipment or duct work.



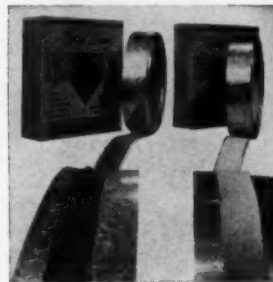
FLEXI-DUCT lifts out of carton for easy use.

VIBRA-STOP . . .

Asbestos or Canvas, 4" wide, factory seal to 4" No. 1 Prime Galvanized Metal on one side, 3" on the other. *Preferred by those who want the quickest, easiest installation.* 25, 50 and 100 foot rolls in handy "roll out" cartons.

Asbestos used is Underwriters' grade and meets Federal specs. MIL-C-4177. Canvas, also Underwriters' grade, meets Federal specs. MIL-D-10860.

Write today for full information, FREE samples and prices — ask for Bulletin 356-AA.



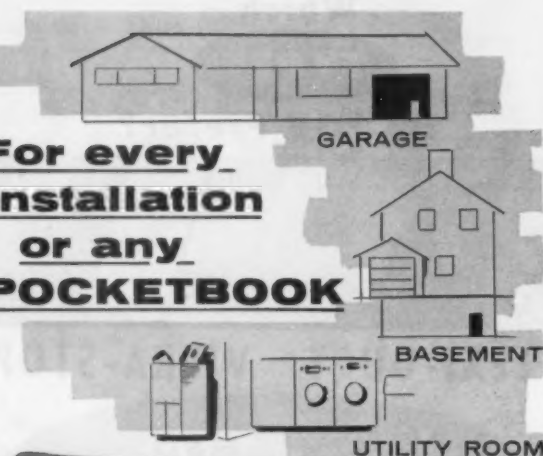
VIBRA-STOP comes in handy "roll out" cartons.

Grant Wilson inc.

ASBESTOS and INSULATING MATERIALS

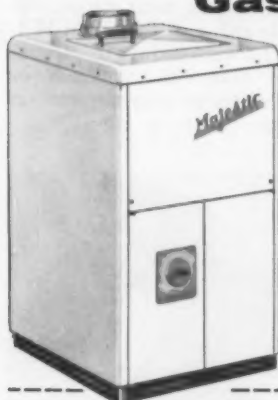
181 WEST JACKSON BLVD. • CHICAGO 4 ILLINOIS

**For every
Installation
or any
POCKETBOOK**



Majestic INCINERATOR

Gas-Fired or Fuelless



Boost your profit picture with full-profit incinerator sales by handling the *complete Majestic line*—gas-fired models and economical fuelless units, in designs for utility room, basement, garage, or breezeway installation. There's a sales story for each unit, as well as the success story of Majestic's thousands of satisfied users.



NATIONAL ADVERTISING — FULL SALES HELPS

Features of Majestic's "magic disposal" are told over and over again in the many sales helps Majestic can furnish. National advertising is building up a big demand for this *complete trash and garbage disposal* system. Make sure now that you have an ample supply of units and the merchandising plans proved so successful in city after city. Gas-fired units approved by A.G.A. for natural, manufactured, or bottled gas.

See your distributor or write

*Pat. No. 2,538,811 — other pats. pending

The Majestic Co., Inc.

110-A Erie St., Huntington, Indiana

wholesaler doings...



SOME 150 HEATING and air conditioning dealers attended the recent meeting sponsored by Myers Furnace Supply Co., Inc.

► MYERS FURNACE SUPPLY CO., INC., Wilkinsburg, Pa. wholesaler, recently sponsored a sales meeting for dealers in Pittsburgh and the surrounding area. A feature of the meeting was a demonstration of installing and field-charging a remote air cooled air conditioner.

► COASTAL EQUIPMENT CO., INC., York Corp. distributor in Houston, Tex. has been acquired by York Corp. and is now a wholly owned subsidiary incorporated as York-Houston Sales, Inc.

► A PROGRAM OF DEALER meetings was recently started by wholesalers of Rheem Mfg. Co. assisted by regional and national executives from the sales and advertising departments of the Rheem firm. Based on the theme "Strike it Rich in 56," the program features intensive instruction on dealer use of the advertising and sales promotion for heating and air conditioning equipment developed by the company.

► ELMER F. DREBUS has been elected vice president in charge of purchasing for Demmler Bros. Co., 95 year old Pittsburgh distributor of sheet metal, heating and air conditioning products. Stewart H. Ballard was named a new member of the board of directors.

► NINETEEN OWNERS, sales managers and other executives of heating and air conditioning wholesale firms recently completed a five day training course conducted by Minneapolis-Honeywell Regulator Co. for the National Heating and Airconditioning Wholesalers, Inc. Walter Baak, sales manager of Minneapolis-Honeywell's wholesale division, said the course was designed to increase creative sales throughout the industry by teaching company officials how they can apply basic sales principles to their heating and air conditioning sales problems. Materials were provided which they can use in organizing and conducting similar training programs in their own companies.

► CURTIS MFG. Co. is now appointing wholesale distributors in large metropolitan areas to handle its packaged lines for residential and commercial applications.

appointments . . .

► **GEORGE O. GOULD** as chief executive engineer of Viking Air Products Div. of National-U.S. Radiator Corp. In his new capacity Mr. Gould will share responsibilities with the division's chief engineer, John E. Harris. Mr. Harris will concentrate on the technical and production aspects, while Mr. Gould will oversee the administration and new product work of the department. For the past seven years Mr. Gould has served as advertising manager for the division. Fred S. Hudson has been named general manager of sales for the firm's heating and air conditioning division at Johnstown, Pa. Mr. Hudson joined the former National Radiator Co. in 1936, and when National Radiator merged with U. S. Radiator, became a district manager for the new concern.



George O. Gould



A. L. Hospers

► **A. L. HOSPERS** as southern regional sales manager of the Union Asbestos & Rubber Co.'s Heating and Cooling Div. Mr. Hospers will supervise sales of heating and air conditioning equipment in 11 states, including Alabama, Florida, Georgia, Louisiana, Mississippi, Tennessee, North and South Carolina, Arkansas, Oklahoma and Texas. He will have headquarters at 1257 Parkridge Lane, N. E., Atlanta, Ga.

► **JAMES BLANTON** as general manager of Stoddard Industries, Inc. Mr. Blanton was previously general sales manager.

► **D. H. THIELE** as national accounts sales manager of the general division of York-Shipley, Inc. For the past four years Mr. Thiele has operated his own business, specializing in the sale and installation of heating and air conditioning equipment.

► **CLAYTON A. STAHLKA** as director of advertising and sales promotion for Morrison Steel Products, Inc. Mr. Stahlka joined the company in May 1952 as advertising manager and prior to that time had held several positions in various phases of advertising.

► **FRANK E. NUTT** as sales promotion manager for Century Electric Co. Mr. Nutt succeeds Anthony Neher, who is retiring. In his new capacity, he will be responsible for sales promotion activities including

How and why TRAP-IT ends fuel oil problems



FOR ALL GRAVITY-TYPE and POWER BURNERS
using up to 5 gph of No. 1 or 2½ gph of No. 2 fuel oil

IMEDIATELY upon installation, Trap-It begins to "clean up" fuel oil by trapping all sludge deposits, dirt and foreign particles on its 100-mesh strainer. No worry about moisture in the oil either. Ends flame failure, sluggish operation, erratic flows or leakage due to dirty oil.

Make Model 243 SY Trap-It a key installation on every space heater or central heating job.

Order from your distributor,
or write:

A-P CONTROLS CORPORATION

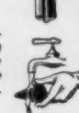
2452 N. 32nd Street, MILWAUKEE 45, Wisconsin
COOKSVILLE, Ontario NIJMEGEN, Holland
For Export: 13 E. 40th Street, New York 16, N. Y., U.S.A.

Cleans in 3 steps

1. Remove two wing nuts.



2. Hold filter element under hot water for a few minutes to remove dirt and impurities.



3. Empty water and heavy residue out of cup — and reassemble.



DEPENDABLE Controls
For Air • Liquids • Gases • Refrigerants

appointments

(Continued)

advertising. Before his recent promotion Mr. Nutt served for several years as assistant manager of the Chicago office.

► **WILLIAM W. FOLLETT** as eastern regional sales manager for the Williams Div., Eureka Williams Corp. Mr. Follett will direct the company's sales of home heating and air conditioning equipment in 11 states including Maine, Vermont, New Hampshire, Rhode Island, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania and parts of West Virginia and Delaware. He will headquarter in New York City.

► **J. WAYNE BURLESON** and **W. T. Halket** as assistant general sales managers of the Permaglas Div., A. O. Smith Corp. Mr. Burleson formerly was southwest district manager at Dallas and Mr. Halket was previously New England district manager for the division at Boston. W. A. Dunn was named manager of the New England area and metropolitan New York. Ken O'Gorman was appointed manager of District 76 in the Midwest. Mr. O'Gorman was formerly manager of District 73 out of Pittsburgh, in which capacity he is being succeeded by Don Shafer. L. H. Hoelter, formerly manager of District 76, was named build-

ing products manager for the division. John L. Stewart has been appointed West Coast heating and air conditioning specialist with headquarters at the firm's plant in Oakland. He will cover nine western states.

► **ROWE GREENWAY**, formerly with the air conditioning division of RCA, as products sales manager for the McGraw Electric Co., Lonergan Mfg. Div. Mr. Greenway will head the division's "Coolerator" program. Robert Wellman has been appointed sales promotion manager. Mr. Wellman was formerly with Clark Equipment Co.

► **DAVID B. DELL** as sales manager for the western division of Marvair Div., Muncie Gear Works, Inc. Clarence M. Ehrhardt has been named sales manager for the eastern division. Both will work out of the general offices at Muncie.

► **O. A. REITER** as advertising and sales promotion manager for Cleveland Fuel Equipment Co. Before joining the Cleveland firm, Mr. Reiter headed the advertising agency of Reiter and Associates.

► **KENNETH B. LUSKIN** as administrative assistant to H. F. Rothwell, vice president of the Delavan Mfg. Co. Mr. Luskin was formerly with Westinghouse Electric Co.

**In the New York market
...where price is
an important factor ...
and rigid building
codes exist ...
Empire Ventilators
outsell all others.**



Sold thru
leading
wholesalers.
See your
jobber.

Empire Ventilation Equipt. Co.

**35-39 Vernon Boulevard
Long Island City 6, N. Y.**

We're handing you REAL SAVINGS



**Phone ROLLED STEEL PRODUCTS
at ORchard 3-7400 Skokie,
Illinois, and save up to 20% on
all your steel needs!**

Be it bar or sheet, hot or cold-rolled, or galvanized ROLLED STEEL PRODUCTS can be depended upon to deliver what you need when you need it—and save you money in the bargain. More specifically, your satisfaction is

UNCONDITIONALLY GUARANTEED

Call us today and let us quote you our low prices. There's no obligation. All you risk is a savings!



Another steel-buy typical of ROLLED STEEL'S VALUES:

**3,000 Tons Galvanized Sheets
All below warehouse price.
Satisfaction guaranteed.**

Rolled Steel Products

Division of Emergency Steel Service Corporation
Distributors of: SHEETS—PLATES—BARS—STRUCTURALS—STRIP

GENERAL OFFICES & WAREHOUSE

7415 St. Louis Ave. Skokie, Illinois
ORchard 3-7400

Top Quality NATIONAL LOCK Hardware makes a good product better

Ask About It For Use On
air conditioning equipment . . .
stokers . . . gas heating units . . .
oil burners . . . humidifiers . . .
space heating units



61-284 PULL



61-258 PULL



61-441
HANDLE



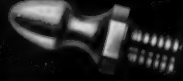
61-366
HANDLE



61-093A CATCH



61-340 CATCH



61-095C STRIKE



THREAD-CUTTING
SEMS



KEYS
PRE-ASSEMBLED NUT and LOCK WASHER



write for complete information
NATIONAL LOCK COMPANY
ROCKFORD · ILLINOIS

appointments

(Continued)



Scott Vrooman



Donald E. Woodruff

► **SCOTT VROOMAN** as assistant manager of sales for the Chicago plant of Joseph T. Ryerson & Son, Inc. Succeeding him as manager of inside sales is Donald E. Woodruff, formerly a sales representative. Mr. Vrooman has been with the firm since 1936 and has served in various capacities, becoming manager of inside sales in 1954. Mr. Woodruff joined the company in 1939.

► **HERBERT E. MILLER** as branch manager for the Washington, D. C., office of the Unitary Equipment Div. of Carrier Corp. Mr. Miller joined the firm's engineering training school in 1947 and a year later was named district service supervisor in the Jackson, Miss. area. Subsequently he served in the same ca-

capacity at the New York and Philadelphia offices, and at the time of his recent promotion was sales specialist in applied equipment for the Philadelphia district.

► **ROBERT M. NELSON** as district sales engineer for Halstead & Mitchell. He will be responsible for sales and field engineering of cooling towers and condensers in parts of Illinois, Indiana and Michigan. His headquarters are at 9525 N. Shermer Rd., Morton Grove, Ill.

► **ELMORE T. SCHECK**, former Milwaukee area sales manager, as regional sales manager of Wisconsin, northern Illinois and part of Michigan for Mueller Climatrol. M. H. Thomas has been named regional sales manager in Indiana, Ohio, western Pennsylvania and part of Michigan. Richard B. Schmidt has been appointed Milwaukee area sales manager.

► **ROBERT D. SQUIRE** as sales manager of the mid-west, northern great plains, and eastern Rocky Mountain states area for Dearborn Stove Co. Mr. Squire will have headquarters in Chicago.

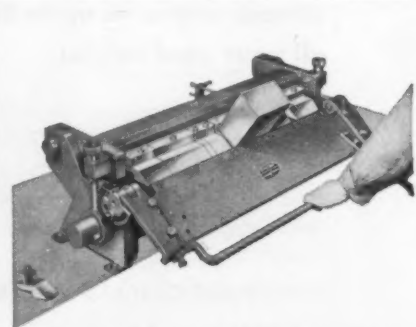
► **G. M. MAHNENSMITH** as a district manager for Armstrong Furnace Co. covering the states of Indiana, Kentucky and Illinois. Mr. Mahnensmith succeeds Ed Clifford who has been appointed to a new territory in Michigan and part of Ohio.

Hand Operated BOX AND PAN BRAKES

One Man Operation - Quick Adjustments - Rugged Construction



UNIVERSAL BOX AND PAN BRAKES
Capacities up to 12-gauge sheet metal
and bending lengths up to 10 feet.



BENCH MODEL BOX AND PAN BRAKES
Made in three sizes with bending lengths
of 24, 30, and 36 inches up to 16-gauge
sheet metal. Stand is available as extra.

Descriptive Literature on Request.

DREIS & KRUMP
MANUFACTURING COMPANY
7404 S. Loomis Boulevard, Chicago 36, Illinois

Only WALKER Has It!

**Automatic Draft Control with
Full Protection at All Vital Points!**



Pat.
Pending

Royal Purple Model

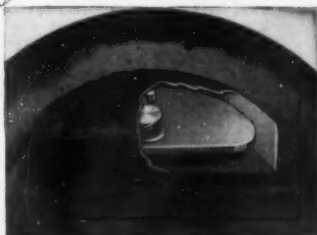
Think of it! A draft control that's absolutely impregnable to soot, carbon, corrosion and dust . . . one that will give years of accurate, trouble-free service in spite of the most adverse operating conditions! The new Walker ROYAL PURPLE model is the first—and only—draft control with positive, all-point protection. These revolutionary improvements can't be copied or duplicated—they're exclusively Walker because of pending patents.

The Royal Purple—Hit of the Philadelphia Show

**THE
INSIDE STORY**



The weight adjustment assembly on the ROYAL PURPLE model is sealed in by a protective housing which keeps mechanism absolutely free from dirt deposits. Untouched photo at right shows back of vane and housing after more than a year's service. Cut-away shows spotless condition of sealed-in weight adjustment assembly. Clean, corrosion-free



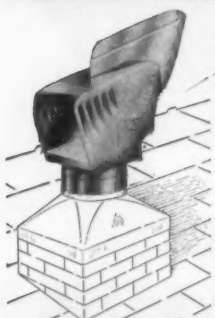
operating parts assure ease of adjustment at any time.

This front view of an actual installation shows location of pivot pins which control vane movement. Notice how they are located on front face of damper and set back, away from edge. Box-type hinges completely seal delicate knife-edge pivots, keeping them clean and sensitive even after years and years of service.

For complete details on this sensational new development in draft control, see your jobber or write Walker Manufacturing and Sales Corporation.



**Another Outstanding Walker Development
VENTURI-TOP CHIMNEY CAP**



Ideal for both heating (gas, oil or coal) and ventilating applications. Directional vane keeps throat of vent facing into wind for maximum draft control. Sloping-throat design prevents back drafts and actually increases draft effectiveness by constricting it as it passes over chimney opening. Unit rotates on a friction-free, hardened-steel ball bearing. Pivot is also of hardened steel to assure lifetime operation. Ring guide bearing in pivot post keeps cap absolutely perpendicular—doesn't sag or lean. Streamlined design is both attractive and functional—a combination which makes it a favorite with today's architects.

Walker Manufacturing and Sales Corp.

1730 Penn St.

St. Joseph, Mo.

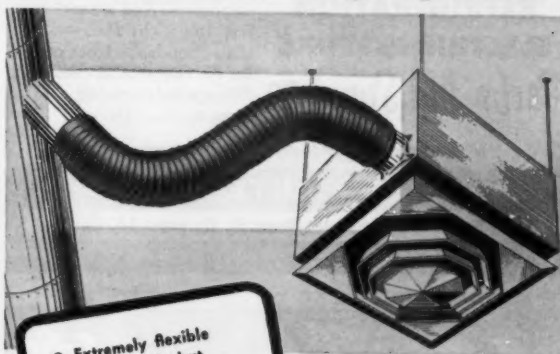
WIREMOLD

flexible

AIR DUCT

tested—proved—preferred

**for Commercial
Air Conditioning systems**



- Extremely flexible
- Light weight but sturdily constructed
- Takes all bends without kinking
- Excellent air flow characteristics
- Waterproof . . . flame resistant

*Easy to install
... Saves time,
money, effort!*

WIREMOLD Flexible Air Duct was developed to meet all requirements for flexible connections in air conditioning systems as specified by leading manufacturers of air distribution equipment.

WIREMOLD Flexible Air Duct's exclusive construction and a specially coated Fibreglas fabric assure maximum longevity. Fabric component is mechanically locked into the strong, steel spiral — no glue or other adhesive to dry out or crack.

WIREMOLD AIR DUCT for air conditioning applications was developed through two years of laboratory testing; service-proved in many prominent buildings. Recommended by leading makers of air distribution equipment.

For further information
write for Data Sheet S-3.

The WIREMOLD Company
HARTFORD 10, CONNECTICUT

YOU Need This Air Conditioning Catalog

It's FREE

Wholesale Only

*Illustrates,
Prices and
Describes*



OVER 10,000 ITEMS

**AIR
CONDITIONING
REFRIGERATION
ELECTRIC MOTORS
Parts and Supplies**

We sell you — NOT your customers. And we sell for less. Buy — by mail — with confidence from our **DEPENDABOOK** catalog. Prompt deliveries of fresh stock — for less!

Write for your copy today on your letterhead to

The HARRY ALTER CO., INC.

1717 S. Wabash Avenue, Dept. G, Chicago 16, Illinois

Branches in New York, Dallas, Atlanta

NEW IMPROVED *Vaporite* Automatic Humidifier



Fits any straight side
warm air furnace

Series 555

**Corrosion Resistant
Stainless Steel
Vapor Pan 4" x 15"**

**ONE SIZE . . . ONE KIT ASSURES LOWEST
COST INSTALLATION AND MINIMUM
INVENTORY EXPENSE**

Vaporite No. 555 Humidifier comes completely assembled in one package. No extras to buy . . . no parts to assemble . . . no extra holes to cut . . . no pan leveling or tricky mounting.

NEW IMPROVED VALVE — Provides more positive drip-feed thermostat operation. Water drips fastest when furnace is hottest . . . pan is dry when furnace is cold. Adjustable for precise vaporization needs of each installation.

Write for Catalog A-3

AUTOMATIC HUMIDIFIER CO., Cedar Falls, Iowa

appointments

(Continued)

► **PATRICK N. MORGAN** as manager of heating and air conditioning sales for the Home Equipment Div., Combustion Engineering, Inc. Mr. Morgan was previously a sales representative for the company in the Ohio-Michigan territory. E. B. Paul has been appointed to succeed him in the Ohio-Michigan area, and Allan Barry will cover the Illinois-Indiana area. Ken McLaughlin will handle sales in the Kansas-Missouri area.

► **WALTER BOWRA, JR.** as sales representative in the Brooklyn, Queens and Long Island area for Thatcher Furnace Co. Mr. Bowra will assist D. J. Buckley, chief sales representative for the territory.

► **WILLIAM L. MAYO** as sales engineer in the mid-western states for Thermac Co. Mr. Mayo will make his headquarters in St. Louis.

► **JOHN TUTTLE** as assistant regional manager for the Detroit sales district of the Airtemp Div., Chrysler Corp. Prior to joining Airtemp, Mr. Tuttle was mid-west sales representative for Henry J. Tully and Co., Inc.

► **EDMUND V. RIORDAN** as sales representative for the Janitrol Heating & Air Conditioning Div. of Sur-

Cut ANY Shape in Metal...

with a BEVERLY THROATLESS SHEAR!

- Capacities to 3/16" in mild steel
- Make clean, knurl-free cuts in any metal to capacity
- High Carbon High-Chrome Blades
- Built to last a lifetime



**Here's What a
Beverly Can Do!**

Cuts made in
18 ga. metal
with Model B-1

Beverly Shears are the most versatile metal shearing tools you can use. Unique shoulder design permits any cut . . . rack and pinion gives great power with little effort. Alloy steel body for maximum rigidity and strength. Made in 4 models.

Write for illustrated circular — or see your Beverly Distributor.



Model B-3
with Ball
Bearing
Held Down

Beverly SHEAR MFG. CO.

3020 W. 111th Street

Chicago 43, Ill.



- A practical, accurate air velocity meter for heating, air conditioning, and ventilating work. Indispensable for measuring grille velocities and air deliveries from registers and grilles; for balancing forced air heating systems, and for checking air distribution of all kinds of ventilating systems.
- Accurate velocity readings, automatically averaged over a 3" dia. free area, instantly indicated in feet per minute.
- Extension handle facilitates positioning of instrument away from the observer for readings in hard-to-reach locations, or where the observer's body would interfere with the normal air movement.
- Unique scale lock makes possible to retain scale reading when desired until the lock is released—an indispensable feature where extension rod is used to position instrument away from the observer.
- Leather case is furnished as standard equipment for added protection when the instrument is not in use and for convenience when carrying it in the pocket.

Ask your Jobber for the FloRite or write for Leaflet 760.

BACHARACH INDUSTRIAL INSTRUMENT CO.

7301 PENN AVENUE—PITTSBURGH 8, PA.

AJAX

PRE-FABRICATED DUCTS and FITTINGS

the complete streamlined line . . .

For extra profits, use AJAX Pipe and Fittings . . . save installation time and labor . . . fit tight and fast with AJAX Automatic Snap Lock connections.

FORCED AIR and GRAVITY INSTALLATIONS!

- Precision Made
- Highest Quality
- Quickly Assembled

WRITE TODAY for line catalog giving full data.

AJAX FURNACE FITTING CO.
216-220 E. Front St., Cincinnati 2, Ohio
Division of The Cincinnati Sheet Metal and Roofing Co.

Use *Stic-Klip*® for Insulation Installation

ON AIR CONDITIONING AND VENTILATING SYSTEMS
FOR COLD STORAGE PLANTS, BUILDINGS AND SHIPS.



- | | |
|-----------------------------|---|
| 1 TYPE B with Locking Plate | 5 SPRING TUBING CLIP (1/4" and 3/8") |
| 2 TYPE B | 6 HOLDING PLATE used with Type A and B |
| 3 TYPE A | 7 TYPE N with Speed Washer |
| 4 TYPE S ADHESIVE | 8 INSERT BASE Securing Signs, Wall Cabinets, etc. |

Stic-Klips permanently bind almost any insulating material to masonry, wood, metal—flat, corrugated, curved, unusual-shaped. This modern method eliminates drilling, puncturing metal—saves time and money.

For illustrated booklet on any of these applications, write Dept. AA

Stic-Klip MANUFACTURING CO.

52 Regent St., Cambridge 40, Mass.

W. A. WHITNEY LEVER PUNCHES

For Every Shop and Tool Box



Also supplied with three punches and three dies in a cardboard carton

No. 48 Punch

All parts drop-forged.

Most sturdy punch built for size.

Capacity — 1/4" hole through 16 gauge metal

Length — 8 1/2" Depth of throat — 2"

Weight — 3 lbs. Stock size punches 1/16" to 9/32" by 64ths.

Write for catalog—then contact your jobber.

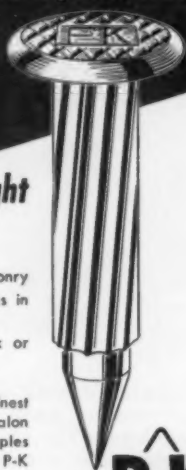
W. A. WHITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.

P-K hardened *Masonry Nails*
do the work of plugs and expansion bolts
... at a fraction
of the cost!

**Built to drive straight
and stay tight**

- No pilot holes needed in soft masonry
- Drive easily into pre-drilled holes in harder materials
- Won't loosen—even under shock or vibration

IF IT'S P-K... IT'S O.K. For the finest fasteners made, insist on Parker-Kalon... the name you can trust. Get samples from leading distributors who stock P-K Masonry Nails... or write:



P-K
TRADE MARK
REG. U.S. PAT. OFF.

PARKER-KALON fasteners

Parker-Kalon Division • General American
Transportation Corporation • Clifton, New Jersey

*When Any Product
Stays Out In Front
Year After Year, It
Does So Because Those
Who Use It Like To
Keep On Using It.*
HANDY PIPE
*(For Instance,
F. Meyer + Bro Co. Peoria Ill.)*

appointments

(Continued)

face Combustion Corp. Mr. Riordan will serve the southern Missouri, Illinois and Arkansas area. He was formerly with the Amstan Div., American Radiator & Standard Sanitary Corp.

► R. V. CLARK as sales manager of the New Products Div., Acro Mfg. Co. Formerly with Penn Controls Co. as manager of heating control sales, Mr. Clark has had 25 years of experience in the automatic control field.



R. V. Clark



Richard D. Hall

► RICHARD D. HALL as sales representative for the Heating Appliance Controls Div., Robertshaw-Fulton Controls Co. Formerly Mr. Hall was with Southern California Gas Co., serving in various capacities in

**NEW IMPROVED
SQUARE
DUCT HANGER**

With new "Positive Lock" cam action feature... No Special Tools! Hammer does the Job! Available in six lengths.

PAT. NO. 256 3242

A. Round Pipe Hanger used when joist is offset from duct
B. Simple Application of Square Duct Hanger as shipped to you

DUCT

SQUARE DUCT HANGER No. 15

AS LOW AS **2½¢ EACH**

SEE your **SUPPLIER** or WRITE for **FREE samples** TEST THEM YOURSELF ON THE JOB!

A. M. HEXDALL CO. Manufacturers of Sheet Metal Specialties
MORRIS, ILLINOIS

- Sharp prong pierces
- Insert "Positive Lock" — snap in place
- Drive sharp prong into joist

appointments

(Continued)

the customer service department. His office is located at the company's Grayson Controls Div., Long Beach, Calif.

► **EMIL RASA** as district sales manager for the O. A. Sutton Corp. Mr. Rasa will supervise the sale of "Vornado" air conditioners in the Cleveland area which includes Detroit, Toledo, Buffalo, Syracuse and Rochester. He was formerly with Worthington Corp. and has also served as eastern district sales promotion manager for Westinghouse Electric Corp.

► **W. F. WINTER** as sales representative for the Berger Furnace Corp. Mr. Winter was previously associated with the May Co.

► **WILLIAM F. WATSON** as sales manager for the Pittsburgh region by Trion, Inc. Mr. Watson was formerly Pittsburgh sales manager for Pabco Products.

► **J. A. HARWELL**, Nashville, Tenn. as representative for the Connor Engineering Corp. handling the sale of "Kno-Draft" ceiling air diffusers in eastern Tennessee. The Norris Blanchard Co., Inc., Omaha, has been named representative for Iowa, Nebraska and South Dakota.



**TIME SAVING
E-Z-ON
DAMPER REGULATORS
PERMIT
INSTANT ASSEMBLY**

(Shown—head piece of #27 E-Z-ON)

**It's the little things that
make the Big difference!**

Advanced design of E-Z-ON damper regulators permits on-the-job Assembly with only a hammer — no drilling — no rivets. This 16 gauge steel regulator is simply positioned on the damper by sliding it over the scribed center line. The E-Z-ON accurately stays in position until a hammer blow drives the sharp prongs through the damper (E-Z-ON prongs will pierce 22 gauge metal.)

E-Z-ONS PROVED MORE PROFITABLE

Job Histories prove that your apprentice or journeyman can save two-thirds of their damper makeup time with E-Z-ONS.

M. A. GERETT Corp.

724 W. Winnebago, Milwaukee, Wis.

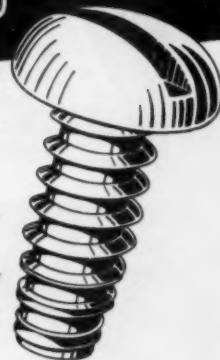
Stocked in CANADA by
THERMIDARE CORP.
7-9 Cumberland Street, Toronto

STYLE & SIZE
Famous E-Z-ON standard
design No. 27
Solid end tail piece, threaded
head piece and wing nut —
3/8" bearing.

Superior E-Z-ON
"Snap-Tite" Design No. 29
Tail piece with retractable
snap end bearing, threaded
head piece and wing nut —
3/8" bearing.

Proved way to cut assembly costs **P-K® hardened Self-Tapping Screws**

- Eliminate tapping, soldering, riveting, bolting
- Stay tight under vibration
- dependable, uniform quality



Type Z Slotted or Phillips

**Save time and money
in fastening metals—
plastics—laminates**

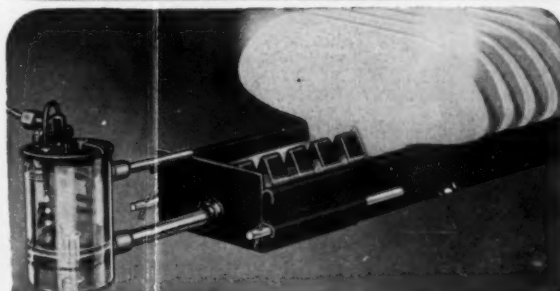
IF IT'S **P-K** IT'S O.K.
TRADE MARK

PARKER-KALON

THE ORIGINAL SELF-TAPPING SCREWS

Parker-Kalon Division • General American

Transportation Corporation • Clifton, New Jersey



There's a PROPER SIZE Monmouth for every Heating Unit

Monmouth does not offer just one size Humidifier for all heating units. It provides a complete range of sizes and capacities to do the job properly — for the correct size pan and correct number of plates are essential to efficient operation. This is especially vital with modern automatic forced air heat, with relatively low bonnet temperature, where sufficient diffusion to convey moisture to the volume of air handled is absolutely necessary. When you install the proper size Monmouth, your job is not half done, but ALL done. The complete line includes various Flotrol Models — the No. 310 for your smaller jobs and the Monmouth gas-fired Humidity Conditioner for all radiator systems. Write for descriptive Bulletins.

THE CLEVELAND HUMIDIFIER CO.

7802 Wade Park Avenue

Cleveland 3, Ohio

**MONMOUTH
HUMIDIFIERS**

KIRK & BLUM THE BLOW PIPE SUPPLY HOUSE

- ONE-PIECE BLOW PIPE ELBOWS
- BALL JOINTS • HOODS
- FLOOR SWEEPS • FLEXIBLE TUBING
- CUT OFFS • ANGLE RINGS
- CYCLONE COLLECTORS & SUPPORTS

From one source you can get all types of blow pipe parts and components . . . made in production quantities by Kirk & Blum.

Depend on K & B manufacturing experience for superior blow pipe parts at less cost than hand made parts.

Write for Literature and Prices
THE KIRK & BLUM MFG. CO.
3180 Forrer St., Cincinnati 9, O.



BOSTON DRAFT STABILIZER WORLD'S MOST ACCURATE DRAFT CONTROL

Guarantees Constant Draft
and protects your heater against draft variables that destroy efficiency!

Now Available
in 6", 7", 8", 9" and LARGER SIZES up to 24". All available with or without TEE section. TOPS in ability to hold draft yet the EASIEST to install.

No Weights To Adjust. Can be properly set, even without instruments.



OPERATE YOUR HEATER AT PEAK EFFICIENCY with ACCURATE DRAFT CONTROL

BOSTON DRAFT STABILIZER

1. Slows down travel of gases thru the heater to a desired CONSTANT speed so heater can absorb the heat before it reaches the stack.
2. Holds a constant draft because variations in draft-pull result in changes of air delivery from the burner fan, causing changes in smoke content and CO₂ of your combustion.

Write for complete details

BOSTON MACHINE WORKS COMPANY
Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

appointments

(Continued)

► FRANK PEREZ as representative for International Sales Co. handling the sale of furnaces in the northern California area. Mr. Perez was formerly northern California factory representative for General Water Heater Corp.'s heating division.

► CHESTER ARTHUR BRUNNER as district sales representative in the Buffalo, N. Y. area for the Air Conditioning Div., American Radiator & Standard Sanitary Corp. Mr. Brunner will work with distributors in the Buffalo area.

► MALCOLM W. BLACK & Co., Inc., New York as sales representatives in New York City, Westchester county and northern New Jersey for Dollinger Corp.

► J. ROBERT MONTGOMERY as manager of the San Francisco Sales office of the Coleman Co., Inc., succeeding Lawrence G. Ingram. Mr. Montgomery joined the company in 1947 and has served in various capacities, most recently as regional manager for heating equipment sales in the Great Lakes area.

► J. BUSTAD as field representative for the Los Angeles branch of General Controls Co. Mr. Bustad, who

ENGINEERING OPPORTUNITIES

in fast-growing field of residential
year-round air conditioning

FRIGIDAIRE

Division of General Motors

has attractive openings
with excellent advancement prospects
for qualified men.

Senior Project Engineers
having at least 5 years experience.

Project Engineers
and

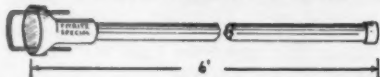
Test Engineers
having 2 to 5 years experience.

Engineering degree desirable but not essential

Send resume to:
Personnel Department
Frigidaire Division
General Motors Corporation
Dayton 1, Ohio

GOOD JOBS NEED GOOD TOOLS

For Longer-Lasting, Cooler-Handling use the "FITRITE" SPECIAL ALUMINUM MOP HANDLE.



Light weight, unbreakable, economical. Will not burn. It's job-tested, engineer approved, and offers many exclusive features that make it the most popular Roofers' Mop Handle made. Offered in 6', 7', and 8' lengths.

A MECHANIC'S THIRD HAND

"FITRITE"
3-WAY
CLAMP

Throat $3\frac{3}{4}$ " deep
Jaws $3\frac{1}{2}$ " x $\frac{3}{4}$ "



A necessary tool for every sheet metal man. Use it for on-the-job bending, forming, seaming, straightening.
Price \$3.55

"FITRITE" SAFETY HOISTING HOOK

The Sliding Sleeve is gravity operated and drops into position automatically keeping any item safely locked in while hoisting.



A new hoisting hook for safely hoisting buckets and other materials.

Price \$2.50

For 1" rope or cable.

To protect the trade, please use your printed stationery

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NEW YORK, N.Y.
TELEPHONE: CHelsea 3-2400-2401

When
You've
Got to
Figure
the Job
TIGHT

See the large Duro-Dyne ad on page 179

Make lowest cost residential flexible connectors with **ECON-O-FAB**



FINISHED CONNECTORS COST LEAST WITH ECON-O-FAB because NO OTHER PRODUCT HAS THESE LARGE DIMENSIONS. Double-Loc Seam prevents cut fabric and call-backs. Available in 50 ft. and 100 ft. rolls.

DURO-DYNE CORPORATION

800-B Third Ave., New Hyde Park, New York

WHO-O-O

MAKES BETTER CONTROLS?

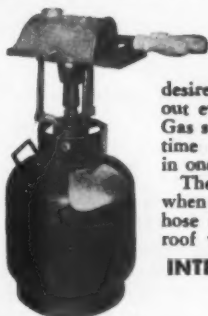
See page 20

**INSTANT
LIGHTING**

Insto-Gas

IT BURNS & PAY OFF

SOLDERING IRON HEATER



Sheet metal contractors can now have hot soldering irons in 2 minutes and with Insto-Gas they can be kept at the desired temperature all day long without even looking at the heater. Insto-Gas saves 40% on fuel cost and enough time to pay for the entire equipment in one week's operation.

The Insto-Gas soldering iron heater when attached to the cylinder by 50-ft hose can be operated on a scaffold or roof without moving the cylinder.

INTERNALLY FIRED SOLDERING IRONS

These Insto-Gas soldering irons are designed for continuous operation with no stopping to change irons. Made in two sizes; the No 1-S (2) for fine work and the No 2-S (5) for heavy soldering.

Listed by Underwriters Laboratories and Factory Mutuals Laboratories

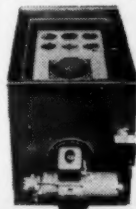
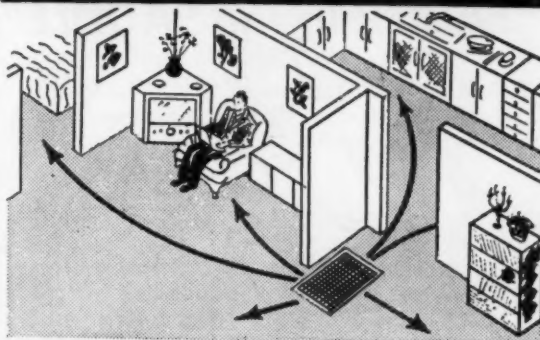
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INSTO-GAS CORPORATION
DETROIT 7, MICHIGAN

ASK FOR NEW FOLDER ON INSTO-HOT SALAMANDERS



New! Factory Assembled GUN TYPE Oil Fired FLOOR FURNACE



Can Be Installed in 3 or 4 Hours

BURNS NO. 2 FUEL OIL
Equipped with Minneapolis Honeywell Safety Controls

A compact steel floor furnace, efficiently designed with a pressure atomizing oil burner. Do not confuse this unit with kerosene burning floor furnaces.

A PRODUCT OF
QUIET AUTOMATIC BURNER CORP.

J. G. RAVENH, President
33-35 BLOOMFIELD AVE.

NEWARK 4, N. J.

FLANGES THE DUCT with Amazing Speed!

Less than 5 seconds on short
and lighter pieces . . .
Slightly longer on bulkier pieces

MAKES PERFECT DRIVE-CLEATS TOO!

The ONLY tool that does both.
A complete drive cleating tool . . .
no set-up time . . . no adjustments.
Handy to take out to the job when
not needed in the shop. Turns idle
time into production time. Flanges
any square duct up to 20 gauge.
Quickly pays for itself in time,
material and labor savings.



No. 12 Smith's Cleat Bender
(12" wide) . . . \$49.80*

No. 18 Smith's Cleat Bender
(18" wide) . . . \$78.60*

*F.O.B. Waukegan, Illinois
Prices subject to change
without notice

**PERFECT
DRIVE CLEATS**
fit the duct without
the use of a screwdriver.
TREMENDOUS SAVINGS
in erection time and labor.

R. E. SMITH

1124 Elizabeth Avenue • Waukegan, Illinois

Windmaster The Modern Draft Control that's "QUICKER ON THE DRAW" and "FASTER In The SADDLE"



Windmaster Corporation

43 Vine St.
Columbus 15, Ohio



appointments

(Continued)

has been with the company since 1952, will handle the sale of controls in the San Fernando Valley area.

► **LAWRENCE H. HIRSCHBACH** as manager of marketing for General Electric Co.'s home heating and cooling equipment. Mr. Hirschbach was formerly manager of modernization sales. He has been in the heating industry since 1933, and at one time was associated with Controaire, Inc., heating and cooling distributor of Fort Lee, N. J. He is the author of a number of papers on heating and air conditioning and has recently been working on the development of a standard for air conditioning ratings within the industry.

► **MARION MILLER** as midwestern regional manager for The Perfection Industries Div., Hupp Corp. He replaces F. J. Rudolph, who has been assigned to the division's home office in Cleveland where he will serve as assistant to the general sales manager. Mr. Miller was manager of the Atlanta district before his recent promotion. Harold Kiefer has been named western sales representative and will cover the states of Washington, Oregon and Idaho, as well as the provinces of Alberta, Saskatchewan and British Columbia. For the past 10 years, Mr. Kiefer has been a sales division representative in the Midwest.

"CORRECT PRACTICE in OIL HEATING"

NOW AVAILABLE TO YOU!

A complete reprint of the valuable series

by J. J. Mirabile

This practical series covers every angle of oil burner work, including arrangement of shop . . . stocking of parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner troubles that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

KEENEY PUBLISHING COMPANY

6 No. Michigan Avenue

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Soldering Aluminum is easy

WRITE
TODAY
FOR FREE
SAMPLES

Permanent aluminum soldering is made simple and easy with ALLEN Alumi-Soder. Complete in itself, flux and solder are combined in exactly the right proportion in a convenient "handy-to-use" stick.

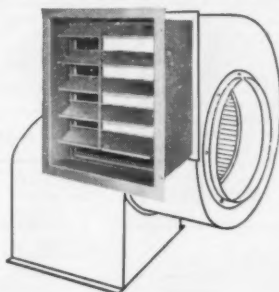


L. B. ALLEN CO. INC.
6702 Bryn Mawr
Chicago 31, Ill.



ELGO AUTOMATIC SHUTTER for Unit Blower

Self-contained in adapter sleeve for attachment to blower. Louvers of light gauge aluminum with felt silencer strips. Rustproof hinge rods. Weatherstripped. Built to fit your blowers.



Write for circular and prices
ELGO SHUTTER & MANUFACTURING CO.
2738 W. Warren Detroit 8, Mich.

Free
CATALOG

-BB- END CAPS

SIZES 4", 5", 6"
GALVD. COPPER, STAINLESS.

"E" SOLDER TYPE "C" SOLDERLESS "C" WIDE FLANGE



Manufactured by
BERGER BROS. COMPANY
229-237 Arch Street Philadelphia 6, Pa.

MANUFACTURERS OF
**FURNACE PIPE
AND FITTINGS,**
Prefabricated Ducts,
also conductor pipe, eaves
trough, drip edge, rake strip, etc.



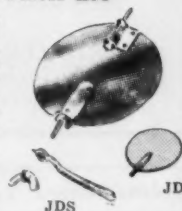
THOR METAL PRODUCTS CO., INC.
Box 118 Eastwood Station Syracuse, N. Y.

When
You've
Got to
Figure
the Job
TIGHT

See the large Duro-Dyne ad on page 179

To save on round dampers—
Use the prefabricated
JIFFY DAMPER

Complete, ready-made damper with Jiffy Regulator pre-attached to galvanized iron blade—for immediate installation in ductwork. SAME DAMPER MADE IN YOUR SHOP COSTS CONSIDERABLY MORE. Two styles: JDS—with Spring-loc bearing; JD—without Spring-loc. Pipe sizes 4", 5", 6", 7" 8", 9"



DURO-DYNE CORPORATION
800-8 Third Ave., New Hyde Park, New York

Be
Control-
Wise!

See page 20



ORNAMENTS

STAMPINGS & SPINNINGS
Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW.

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N. Y.

**DIAMOND
TRADE MARK
GRILLES**

Look Better — Last Longer
Superior workmanship and finish in heavy-gauge metal assures installations of lasting beauty. Most designs stamped in any thickness, up to one-fourth inch, from any metal. Catalog No. 36 illustrates all designs and gives complete working data. Free on request.

Diamond Manufacturing Co.
Box 34 Wyoming, Pa.
Sales representatives in all principal cities

CLASSIFIED ADVERTISING

Classified Section: Rates for classified advertising are 12 cents for each word including heading and address. One inch \$6.00. Count seven words for keyed address. Minimum \$2.00 for each insertion. Cash must accompany order.

agents wanted . . .

REPRESENTATIVES needed in many midwestern, southern and western states by national manufacturer of a complete line of oil and gas-fired heating equipment. Interested in representatives serving wholesalers and/or dealers. Send complete information. Address Key 1032, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

DISTRIBUTORS WANTED

There's more business, more profits for you when you handle our complete line of professional shears, trimmers, and tinners' snips! Here's why: established name, exclusive product features, and promotional aids give you a running jump on competition! Write us today and we will rush you all details.

W. H. COMPTON SHEAR COMPANY

318 Camden Street Dept. C3 Newark 3, N. J.

Seldom in the lifetime of a manufacturer's rep is a line available that offers the potential for a middle five figure income.

Our line is a heating accessory that represents a jobber cost of between \$40 and \$60 per furnace installation and can be used on every installation — oil, gas or coal.

Our line is nationally advertised in "Better Homes & Gardens", "House & Garden Book of Building", "House Beautiful Building Manual", "Small Homes Guide", "Practical Builder" and of course, the trade magazines as well as "Sweet's Architectural File".

The average warm air wholesaler will buy in excess of \$20,000 worth of our product per year.

This line, however, is not a pushover. The representatives are required to make dealer promotional calls in addition to the usual jobber calls. Most jobbers are willing and anxious to hold dealer meetings for which we provide a thirty minute sound and color motion picture as well as the finest array of sales helps and promotional material that you have ever seen.

Our representatives are, and the new ones we select, must be self-starters, aggressive and willing to work hard to build up the acceptance of our product. Our representatives do not handle any major lines of "brand" equipment. Their lines are chiefly "accessory". They work a concentrated territory.

This line may be available in your territory. If you are interested and can fulfill the above qualifications, write giving a complete resume of yourself and your operations to Key 1039, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

situations open . . .

WANTED—Assistant Sales Manager for company manufacturing line of gas heating equipment and evaporative coolers. Position requires both inside sales administration and outside contact with trade and own salesmen. Offers unlimited opportunity to man with imagination and enterprise. Experience in gas heating sales desirable but not necessary, if other experience compensates. Midwest location. Salary open. Address Key 1036, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Growing manufacturer of automatic heating equipment is seeking a man who has had sales experience in merchandising heating and air conditioning equipment to the heating and sheet metal dealer. Territory open in Southern Indiana and border cities and towns in Ohio, Kentucky and Illinois. Remuneration based on company furnishing travel expenses, salary and commissions. Address Key 1027, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

for sale . . .

I. C. Coke tin for sale, 25% discount on total purchase, F.O.B. our shop, each box contains 56 sheets and are ideal for 8, 9, 10 and 12 inch furnace pipe.

21 boxes 24 x 26 1/2"	\$13.75 per box
12 boxes 24 x 29 1/2"	\$15.20 per box
14 boxes 24 x 32 1/2"	\$16.55 per box
14 boxes 24 x 39 1/2"	\$20.55 per box

Address Key 1038, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

1/4" Ribbed Wire Glass, Stock Sheets, 30c sq. ft., cut sizes slightly extra, plus boxing, F.O.B. our warehouse, Atcheson Glass Co., 920 Main St., Buffalo, New York.

FOR SALE—Skelley Industrial stoker with automatic controls, 1200 lbs. per hour hard or soft coal, excellent condition, priced to sell. Address Key 1029, American Artisan, 6 North Michigan Ave., Chicago 2, Illinois.

agent wanted . . .

Manufacturer of automatic heating equipment is looking for sales representative calling on heating and sheet metal dealers in Southern Wisconsin, Southern Minnesota, Iowa and Northwestern Illinois. Company offers complete line of automatic heating equipment and a very attractive sales program for franchised dealers. Address Key 1028, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

REPRESENTATIVES — now calling on distributors and dealers in the heating trade — we have the most efficient register on the market today — a 4 way diffuser making possible ONE register for EVERY air pattern — provides the best in perimeter heating and cooling. Finger tip control, adjustable in all directions, simplifies balancing problems; positive volume shut-off. Write GENTLE-FLO Co., Dept. A-401, Boro Ave., Clifton Heights P. O., Delaware Co., Penna.

THE SERVICE SECTION OFFERS A REAL OPPORTUNITY TO COMMAND NATIONAL ATTENTION FOR YOUR ADVERTISEMENT AT EXTREMELY LOW COST. WE'LL ASSIST YOU IN PREPARING AN ADVERTISEMENT . . . CLOSING DATE, TWENTIETH OF MONTH PRECEDING. WRITE NOW!

business opportunities . . .

FOR SALE—Opportunity for capable ambitious man. General sheet metal shop in Massachusetts. If you want to own your own business, net \$7000-8000 and can invest \$6000, write Key 1033, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Warm Air Heating, Air Conditioning and Sheet Metal shop. Central Ill. Est. 25 Years. Nice Building, Trucks, Machinery and Inventory all for \$32,000.00. Profit in 1955 \$17,000.00. Books open to bonafide buyer. Owner retiring. Address Key 1037, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

lines wanted . . .

MANUFACTURER'S REPRESENTATIVE seeking one or two additional lines of machinery or supplies. Contacting jobber trade Illinois, Wisconsin and Minnesota. Twenty years experience this field. Address Key 1035, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

A new sales organization now being formed by two men with national sales and engineering experience in heating, ventilating and air conditioning. Large dealer following. Looking for manufacturers to represent in the Philadelphia market. Address all replies to Key 1034, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Manufacturers' Agents

Are you interested in securing additional lines?

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential heating, air conditioning, and sheet metal products.

If you would like your name listed in our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

AMERICAN ARTISAN

6 N. Michigan Ave., Chicago 2, Ill.

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A postal regulation relating to the handling of undelivered mail may result in some issues of *American Artisan* being thrown away instead of being returned to us — as they have been in the past — for remailing to your new or correct address.

To avoid missing any issue of *American Artisan* it is more important than ever to report both your new and old address to us and your post office. Deadline is the 18th of the preceding month for the next issue. Send changes — and new local postal delivery zone — to

AMERICAN ARTISAN
6 N. Michigan Ave.,
CHICAGO 2, ILL.



**RUBBER
LADDER SHOES**
for safe climbing
... Order today.
**JOHNSON
LADDER SHOE CO.**

Eau Claire, Wisconsin



**A
GOOD
LAW
TO
BREAK**

The law of averages says that cancer will kill one out of every six Americans. But the law does not have to prevail. You can help break it in two ways. By having a thorough medical checkup every year ... and by sending a contribution to your Unit of the American Cancer Society or to Cancer, c/o your town's Postmaster. Fight cancer with a checkup and a check.

AMERICAN CANCER SOCIETY

SERVICE SECTION

Rates for display space in the Service Section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue. Plan now to move your products quickly and economically with consistent advertisements in this section.

**Drive
Cleat
Notcher**



Handles up to 3" wide, 22 ga. or lighter. Hand or foot operation. Mounts on bench, or on job with clamps, or bolts and screws.

HANDY TOOLS AND EQUIPMENT

**New
Clip Punch**

For fastening slips or seams on ducts. Will push a "half moon" through 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.

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METAL MACHINERY**

REINER & CAMPBELL CO., Inc.

Post Office Box 5035, Newark 3, N. J.

**Quick Set
Dividers**



Fastest and most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or penell. No center punch.

WODACK ELECTRIC HAMMERS GIVE MORE SERVICE FOR YOUR MONEY

The first cost is not the full cost of the electric hammer you buy. That's determined by the service it gives, the time it saves, and the cost over the years of keeping it at work. Wodack Hammers are long lived and easily serviced. They do drilling, cutting, grooving, chipping and many other hammering jobs. Hammers you can depend upon. Your next electric hammer should be a Wodack. Ask for Bulletin 510-AA. WODACK ELECTRIC TOOL CORP., 4627 W. Huron St., Chicago 44, Ill., U.S.A. Phone Austin 7-9866.

**ELECTRIC
HAMMER**



ELECTRIC DRILL

40 YEARS MAKING WODACK® ELECTRIC TOOLS

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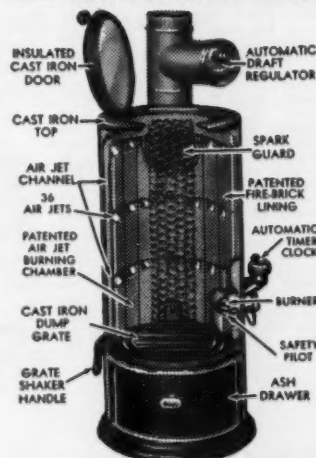
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PHONE: HAYmarket 1-0900

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WHAT'S
WANTED
IN HOME
INCINERATORS**
its
**CLOG-PROOF
RUST-PROOF
and WON'T BURN OUT!**



**The COLE HOT BLAST
HOME INCINERATOR**

MANUFACTURED BY

COLE HOT BLAST

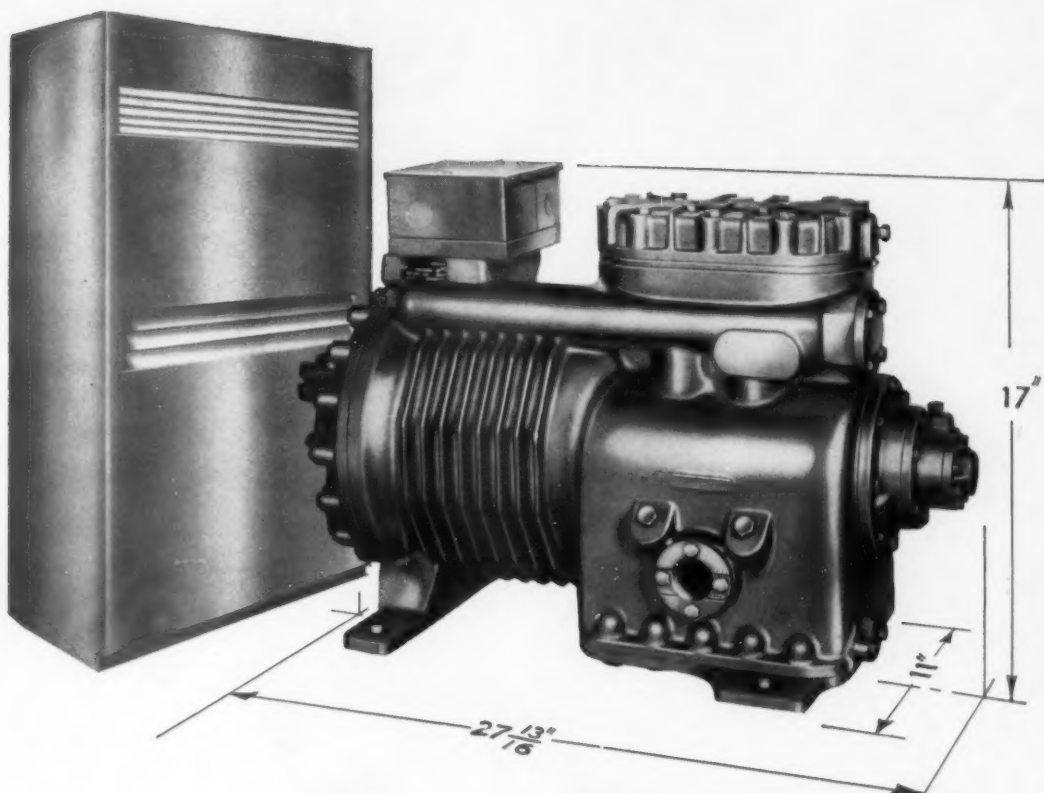
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3817-35 S. MARINE AVE. CHICAGO 9, ILL.

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NEW... *Quiet, efficient, power-packed*



10 H.P. ***Copelametic***

There was plenty of interest in this 10 H.P. Copelametic when we introduced it at the ARI Show in Atlantic City. Many features make it ideal for quality, packaged air conditioning.

The 10 H.P. Copelametic motor-compressor fits neatly into a compactly designed unit. For greater capacity, two motor-compressors can be installed for flexibility in operation.

Use of suction cooling and Freon-22 give the 10 H.P. Copelametic high capacities with low power input. As in

all time-proved Copelametics, belts, seals and manual oiling are eliminated. Being accessible, adjustments and parts replacement can be made on the spot with minimum loss of operating time.

Everything required in package air conditioning is featured in the 10 H.P. Copelametic. It is compact . . . rugged . . . efficient . . . quiet-running . . . accessible. It has the protection of positive lubrication.

A comprehensive, detailed engineering packet describing the 10 H.P. is available. SEND FOR YOURS.

SINCE 1918



CORPORATION, Sidney, Ohio

"No noise" is good news...

WHITE-RODGERS

announces
a new line of

Completely
Silent **GAS VALVES!**



Complete Line Includes...

- Seven Sizes: $\frac{3}{8}$ ", $\frac{1}{2}$ "S, $\frac{1}{2}$ "L, $\frac{3}{4}$ "S, $\frac{3}{4}$ "L, 1"S, 1"L.
- Available for use with or without Plug-In Pilots
- Manual Operator Optional: Automatic recycling or non-recycling

Absolutely Quiet... Never again will customers complain about valve noise. The White-Rodgers CS* gas valve has no plunger, no relay "snap" to create the slightest sound.

Easy To Install... 8 terminals are accessible for easy wiring... standard valve lengths make them easy to use for replacement.



Plus These Features... All CS* Valves contain a built-in bleed-valve filter. No changes in thermostat are necessary because valves draw .4 ampere, as do all White-Rodgers primary controls. CS* valves are for use with all gases.

And Competitively Priced, Too!

Remember... **CS means Completely Silent*



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